COAL AGE

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The Old Men

MANY MINING COMPANIES carry the idea of employing all young men to a ridiculous extreme. They contend that youth has strength, hope, ambition and enthusiasm, and that these qualities are possessed to a lesser degree by men advanced in years. Let none of us forget that in the mining business today there are scores of men of recognized merit who are well past the 60-year mark. Their physical strength may be less, but they possess vigorous mental power, a well-tempered sense of duty and a precious practical knowledge gained through years of faithful service. Efficiency, not age, should determine the worth of an employee.

First Aid

By C. P. Shockley

I COME as a soothing angel. I am the initial step in relieving mankind's suffering caused by accidental misfortune. A few years since few but men of science could practice my art; now many know and love me. Governments, corporations, organizations, individuals are among the well-wishers of and conjointly work for my advancement. In the hot mills, in the remote workings of the mines, in all places of industry at this time am I a necessity.

I am the fruit of the power to awaken pity, to desire to be helpful, to inculcate in each the feeling of brotherly devotion.

Throughout the land men unselfishly consecrate a portion of their time that I may exist, and by my conjuration dispel the lines of class and spread o'er humankind the mantle of faith and affection.

I encourage the thought of community feeling—the bond of common interest. It is my province to establish belief that man should aid man and that my brother's welfare is my welfare.

I am an incentive to higher ideals, to more advanced education. To future generations will I be taught in all schools, that the young shall know my value.

Though I am mighty and far-reaching, yet some are greater than I. Before first-aid should come care, the exercise of which means self-preservation, and until all men assimilate this truth will I be a necessity.

Efficiency

By Geo. N. Lantz

THE TERM "EFFICIENCY" too often brings up in the popular fancy a picture of rushing, shouting, swearing, sweating men, working to the point of exhaustion; of creaking, groaning, whizzing, grinding, crushing, overloaded machinery; of noise everywhere; of excitement and high tension; of a shop, factory or mine where every other principle is subordinate to that of "maximum output."

Maximum capacity, it is true, is one of the objects of efficiency. Efficiency often has a "punch." But it seeks a minimum cost. And cost of production includes cost of equipment, maintenance of equipment, the wages of men, the lives of men.

Efficiency does not impose impossible conditions. It does not mean more cars than the motor-brake can control on a down-grade. It does not mean the destruction of a $5,000 machine for $1,000 worth of coal. It does not mean the loss of a $100 mule to save the cost of $10 worth of labor. It does not mean "gouging" the mine for a capacity of 1,000 tons daily this month and a drop to 500 tons next month.

It does not mean waste. Efficiency means a high average. It means adequate equipment. It means well-timbered and well-lighted entries. It means recovering rails from falls. It means a careful use of supplies. It means contented workmen. Efficiency does not indulge in loud shouting and self-praise.

The mushroom is efficient. It comes up in a night, through constant, gentle and quiet pushing. Thoroughness, accuracy, consistency, cheerfulness, cleanliness, carefulness, honesty, calmness, sobriety, safety—all these are component parts of efficiency. Efficiency and good judgment are synonyms.

Evolution of Coal Preparation in West Virginia

By H. Reisser*

SYNOPSIS—Within a comparatively short time the demand for coal has changed from run-of-mine to prepared sizes. The first attempts at preparation were by means of bar screens. At the present time, however, these have given way to shaking screens, picking tables, loading booms and other devices the object of which is to secure a clean and large-sized product.

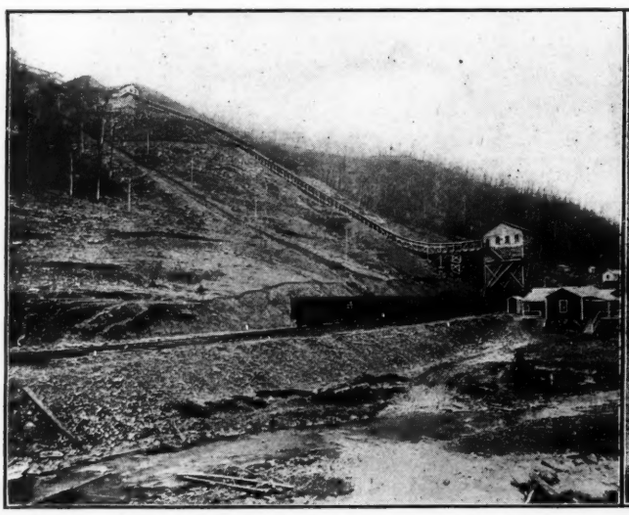
It is surprising in how short a period the demand for a better grade of bituminous coal has been evolved. It seems but yesterday that on passing through the coal fields one noticed the majority of operations of any magnitude consisting of the time-honored horn dump, made up principally of two T-rails bent to a circumference about the size of the mine-car wheels. This was placed at the side of the coal car high enough up to allow a small dumping bin to be rigged up under it, to which was fastened a chute generally of wood with a cast-off piece of sheet iron spiked to its bottom. This arrangement well served the purpose of filling the railroad cars.

If the vein of coal lay lower than the tracks, mules usually furnished the hauling power, one car at a time being the capacity. If the vein was high above the tracks a gravity plane with one or more cars in a trip was installed, the loads that went down taking up a corresponding number of empties. Then followed the "barney," or leader, which consisted simply of a huge mass of timber mounted on rollers traveling on a narrow-gage track which gradually disappeared as it neared the terminal of the run at the bottom and allowed the car or cars it brought down to travel the remaining distance to the dumping point by gravity. In some places where the vein lies too high to utilize a mechanical haul or conveyor these barneys are still in use.

*Engineer, Link-Belt Co., Philadelphia, Penn.

The increasing demand for a bigger capacity gradually brought the "monitor" into use. This consisted usually of a large round tank much like a boiler mounted on wheels, holding from 5 to 10 tons of coal. This eliminated the necessity of bringing the mine cars down the incline and thus did away with much wear and tear and the frequent wrecks caused by their jumping the track on their way down. Furthermore the monitor in large measure removed the necessity for keeping the mine cars away from the working-faces for long periods. This method of operation made it necessary to construct bins at the top of the inclines so that the monitors could be loaded quickly and allowed the dumping of the cars to continue without interruption or delay.

Another bin at the bottom big enough to hold the contents of the monitor increased the rapidity of operation. Run-of-mine was the product secured, so that one or two more knocks for the coal didn't matter. The issue was to load the railroad cars and as many of them as possible, all the hauling, gathering, etc., being accomplished by mules and the coal being worked out by picks, which was the miner's entire tool chest.



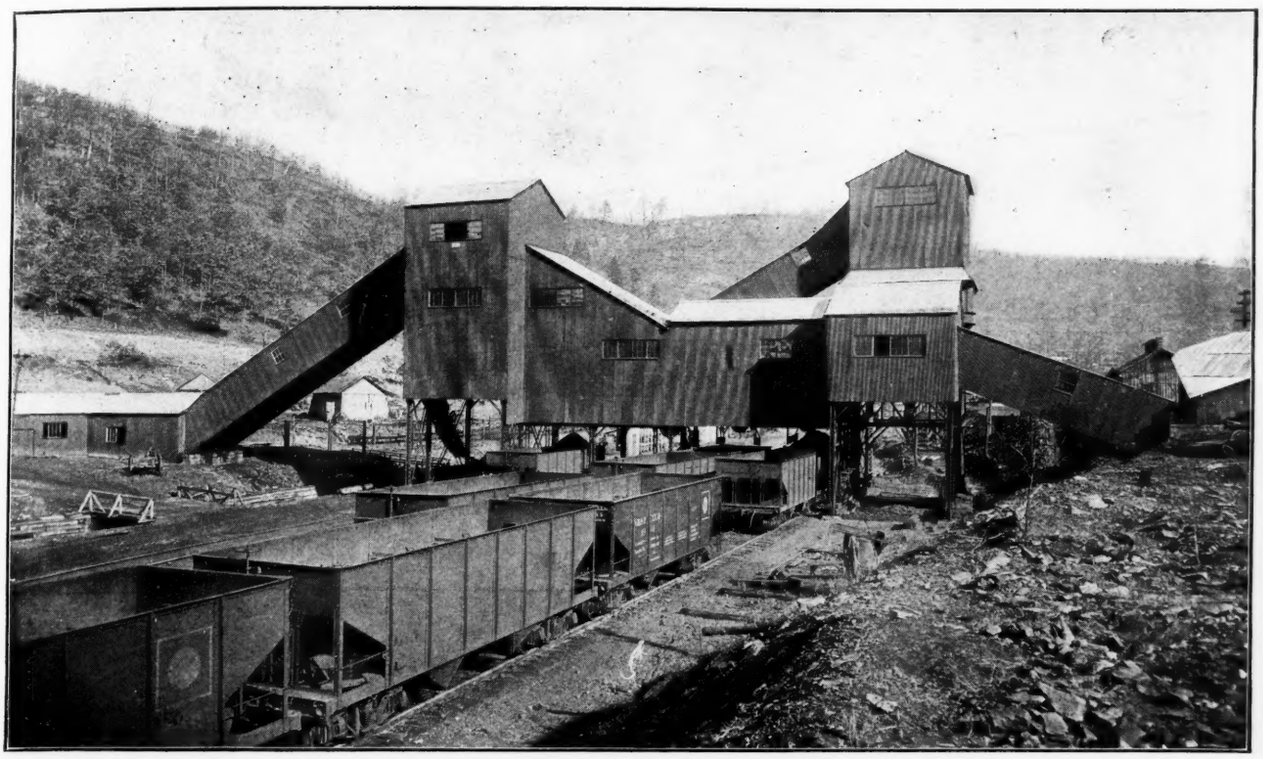
One of the Early Chain Conveyor Installations

General View of a Chain Retarding Conveyor

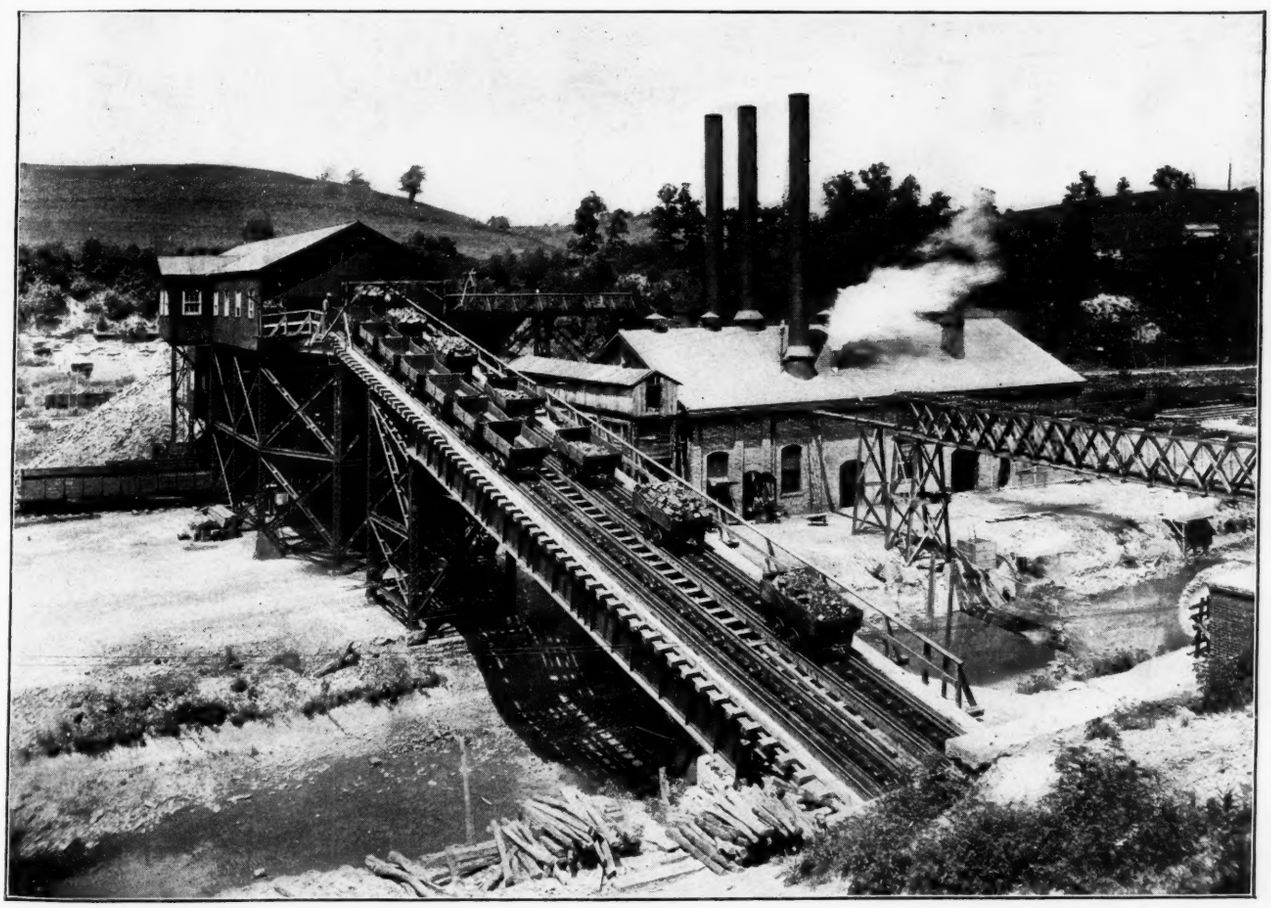
With the perfection of electric transmission and later of electric gathering and haulage locomotives, cutting machines and drills, the capacities were again increased, and long chutes down the hillsides were installed as well as large bins. These became the rule of the day, the bins over the tracks being usually built so that the mine could continue to work even though railroad cars were not immediately available.

First Preparation Was by Means of Bar Screens

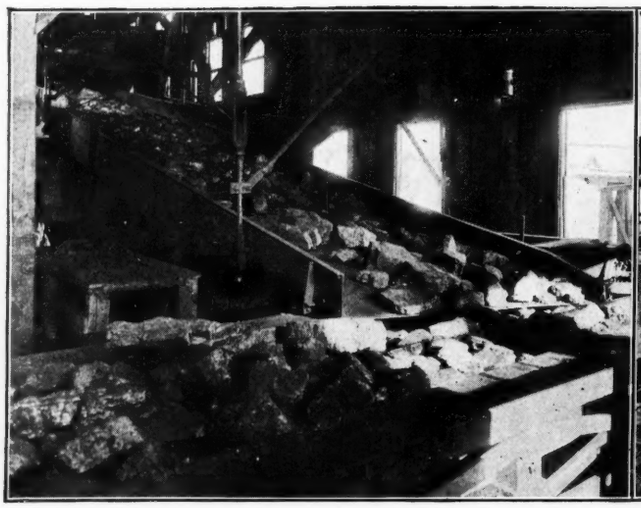
The opening of the West as a market for domestic coal brought the gravity bar screen into use. This usually consisted of a long run for the coal where the smaller sizes were removed and often again separated by additional screens under the larger ones.



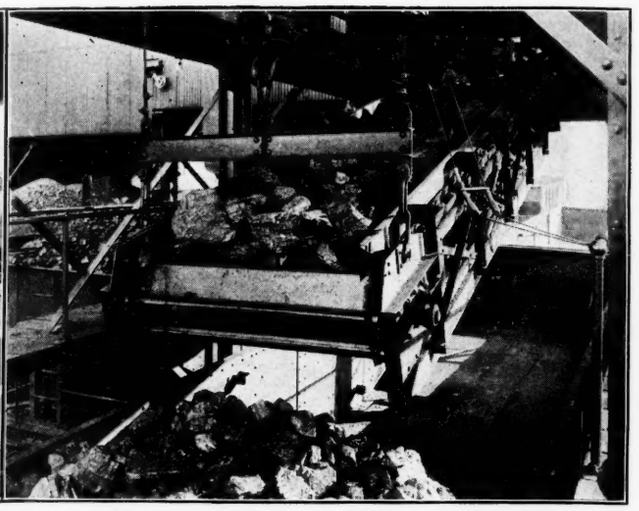
A Modern Plant Where Apron Conveyors Are Employed to Elevate the Coal from Seam Elevation to Screening Height



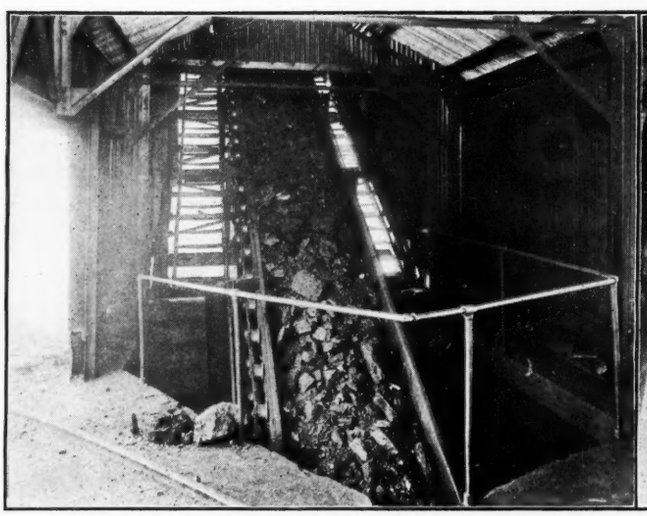
Chain Car-Haul of a Slope Mine. One Strand Raises the Loaded Cars to Dumping Height, the Other Returning the Empty Cars



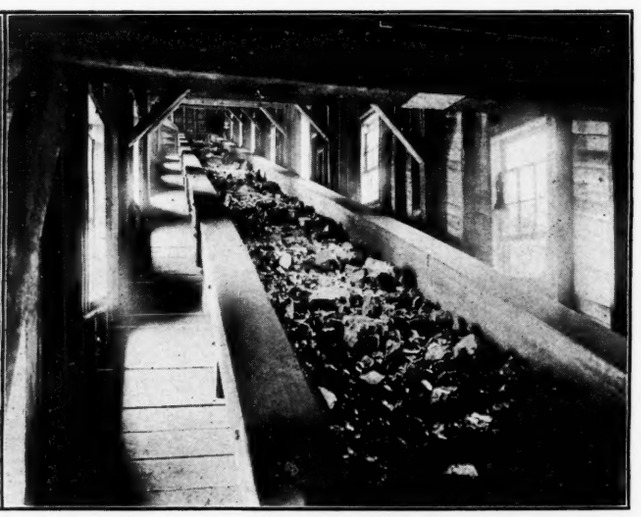
Shaker Delivering Lump onto Picking Table



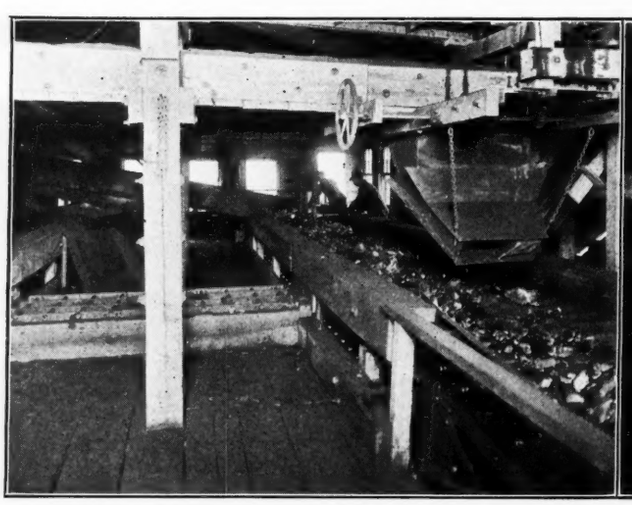
Loading Boom in High Position Topping Off Car



Apron Conveyor Moving Upward from the Mine



Apron Conveyor Employed as a Retarding Conveyor



Picking Coal before It Is Remixed

Picking Nut and Egg Coal

For the types of tipples where the coal lay high above the tracks mechanical conveyors were tried successfully and were installed at many places. The favorite types were either double strands of endless chain with scraper flights placed between them at regular intervals or a single strand of wire rope with circular disks fastened to it at equal spacings. Both of these devices traveled in steel troughs.

These conveyors can of course be extended to almost any length by building them in two or more sections as the case may require. They are economical, durable, not liable to get out of order and often require little or no power to operate, this depending of course on the angle of inclination of the hillside.

In slope mines, chain or cable hauls bringing the mine cars up into the tipple were installed. In the tipples were located the gravity screens discharging the respective mixtures and sizes into the railroad cars.

In the Fairmont region this form of tipple still survives in many cases, owing mainly to the fact that the gas coal of this section is extremely hard and rough handling does not seem to appreciably deteriorate the product.

With the development of a market for domestic sizes of lump, egg and nut the demand for a gentle handling of the coal increased, and the gravity screening equipments did not meet the requirements. This was especially the case in the Pocahontas and New River fields, where the friability of the product is excessive. Breakage in these fields resulted in large percentages of slack, and the amount of this size produced made prices for it extremely low. Even then it was hard to dispose of.

Coking, of course, took a large amount of this slack, and the coke business was flourishing at that time. There were few operations that did not include a set of beehive ovens in the equipment. The activity in this particular branch of operations has to a large extent disappeared, for the reason that the coke was fragile and did not carry well.

The anthracite fields in Pennsylvania and the bituminous fields of Illinois had tried the shaking screen successfully, and this device began to appear in various places elsewhere with good results. The shaking screens eliminated the long runs of the gravity bar screens with the resulting smashes for the product. They consequently made a superior sized coal and more of it. The screen usually used was of a type with either round or oblong perforations, depending on what market the individual operator had for the respective sizes.

Lately these screens have been supplanted in many cases by what is known as the "flanged lip" screen, consisting of tapered slotted holes formed in steps of from 8 to 12 in. in length, thus turning over the product and removing any fines which may cling to or ride upon the larger pieces.

At the end the screens discharge into "spiral end loading chutes" which have hinged adjustable extension chutes, allowing the coning of high or low cars. These still continue to be the loading appliances for the hard veins of coal and for run-of-mine plants.

Loading Booms Take the Place of Chutes

Loading chutes for the lump and egg sizes, and in many cases for nut, are being rapidly discarded for the "hinged loading boom." This consists of a moving apron traveling partly on a horizontal fixed portion and the remainder moving on an adjustable steel frame which can be raised or lowered at will by either an electric or a hand-operated hoist.

An additional advantage of these machines is the fact that a splendid chance to clean and pick the coal can be secured by extending the horizontal portion a suitable length so as to allow three or four pickers to stand at the sides of this apron and remove all foreign material.

All operators now consider the picking of lump, egg and in many cases the nut coal indispensable and to make a perfect product install these machines at the ends of the picking tables. As an additional refinement they install short sections of screen just before the different products pass onto the tables, to remove any remaining fines which may have been made in the previous process.

The resulting amount of the refuse, draw slate, etc., is disposed of either by means of bins under the picking tables with a series of openings at the sides of the tables or by a cross conveyor which carries this product to a suitably located bin. It is either taken finally to a suitable dumping point by wagons or mine cars, or in some cases it is crushed and is used for boiler fuel.

A Double Strand Flight Retarding Conveyor Looking Uphill

Apron Conveyors Are Now Often Employed

Probably the latest development in the carrying of coal for either slope or drift openings is the apron conveyor. These machines will handle the product with less breakage than any machine yet tried, since the coal once on the apron does not move until it is discharged at the terminal end. Such conveyors are especially adaptable and satisfactory to the slope mine, since they eliminate the necessity of bringing the mine cars to the surface unless it is for repairs, and in some cases the repair shops for them have been placed underground.

In these cases the scales, if used, as well as the dumping hopper are placed at the elevation of the coal bed.

Whether it be a slope or a drift mine, apron or plate feeders can be installed under the dump hoppers. The discharge can be thus fed over a short section of either

lip or bar screen, allowing the fine coal to fall upon the apron first, in this manner forming a cushion for the larger sizes going over the screen. This method gains the opportunity to clean the coal before it is placed on the shaking screens preparatory to being sized or loaded into the railroad cars.

The demand of the trade today calls for a perfectly cleaned and screened coal, and the operator offering the market such a product is the one who runs full time and gets good prices.

The demand of the operator for less breakage and a cleaner product is causing the manufacturer of coal-preparing equipment to exercise the height of ingenuity in handling, cleaning and loading the output of the mine.

Extracts from a Superintendent's Diary

During our strike last year two nonunion miners were shot while en route to work. There were a number of witnesses to the shooting, and any number of people knew all of the circumstances connected with the plot that led to the killing as well as the details of the actual murder.

Several months after the strike was called off the man who suggested the killing of the two men was arrested, and yesterday he was sentenced to life-imprisonment for his connection with the crime.

Immediately following his arrest most of the papers of the state began to print editorials deploring the fact that an arrest had been made, and some of them went farther and intimated that it was a plot of the mine owners to get further revenge upon the miners' organization, as the strike settlement had failed to crush the union completely.

Today I have found in every paper that I have been able to obtain an editorial upon the verdict, and most of them denounced the judge and the jury in no uncertain terms, and then, as if not satisfied with that, led off on long dissertations as to the terrible consequences that would surely follow because of this hounding of the union by the operators. The picture of the retribution that is to follow, suggested by some of the editorials, is almost too terrible to contemplate. Surely anyone who took the more radical of these editorials seriously should be ready and willing to take up arms against the terrible operators and drive them into the ocean.

During the progress of the trial the more conservative editorial writers argued that the case should be thrown out of court because its continuance could have no result other than to keep open old sores; the strike had been settled and the operators should be willing to forgive any overt acts and allow the miners to begin again with a clean slate. Now that the final conviction has come, even the conservative papers could not refrain from hinting that the trial looked like a frame-up by the operators.

Because of the fact that I know personally every man who was connected with the crime in any way and also know every witness and every other person who took part in the trial, I know positively that a fairer trial has never been staged and the verdict could not have been otherwise if the evidence were considered, and moreover I know that the miners know to a man that the verdict was just.

Knowing this, I am wondering what would be the inevitable result if this convicted man were pardoned by our governor as a result of popular clamor and editorial influence. Might not the time come when strikers would be so imbued with the idea that they need have no fear of the courts that all strikes might become bloody and vindictive to a degree that in comparison the present suggestions of some of the I. W. W. officials would seem tame indeed.

And as to the issue that is being raised about the revengeful operators taking an interest in the trial and thus making it impossible for the accused to receive fair treatment, pray how is anyone ever to be brought to justice if the injured ones are always to be discredited and treated like Black-Hand men without being granted a hearing or even allowed to suggest persons who should be interviewed?

Dry Cleaning Bituminous Coal with Spiral Separators

By J. V. Freeman*

Of the various methods proposed for the dry cleaning of bituminous coal, such as bumping tables, electrostatic and separation by air, the spiral separating system is one of assured practical application. This process of concentration of coal is an adaptation from the anthracite fields, with modifications so as to be applicable to bituminous coal.

A very successful installation of this spiral gravity process in Illinois is at the mining plant of the Old Ben Mining Corporation, at West Frankfort, Franklin County. The plant and details of operation have been fully described by Mr. Richards in the Success Issue of Coal Age of Apr. 13, 1915, by Mr. Hall in Vol. 3, page 719, and by Mr. Buchannan, who first developed it on a large scale and who relates interesting information concerning its establishment in Vol. 3, page 750.

The spiral system for the preparation of domestic coal is ideal, producing a clean, uniform-sized coal which finds a ready market. Other advantages greatly in its favor are as follows: Operates without expensive machinery and oils, the entire process depending on gravity; highly suited for the concentration of coal in dry localities, where water cannot be obtained in sufficient quantities to use the regular washing system; low labor cost; reasonable initial cost as compared with a coal washer, doing away with expensive jigs, etc.; as no water is used there is no added expense for dewatering the cleaned product.

As to the suitability of spiral separators in preparing coal for coke-oven purposes, definite and final information is yet to be had. The percentage of reduction of impurities in this method is considerably less than that of the water process. If its efficiency in this respect could be improved it would be more generally adopted, having in its favor the delivery of a coal in which the moisture content has not been increased over that of the originally mined coal.

Further, the spiral system will not admit of the treatment of fines, say coal under 3/8-in. size, nor is it possible at present to handle anything over 6 in. As in any other new process, its adaptability to treat all kinds of coal and under different climatic conditions is yet to be determined. I say climatic conditions, because extreme cold or moist conditions might retard the travel of the coal down the iron plate spirals, reducing the efficiency of separation.

*Joliet, Ill.

Retarding Conveyor at a West Virginia Mine

By William Brasack*

SYNOPSIS—An interesting installation where coal is lowered without breakage from the pit mouth on a hillside to railroad cars in the valley below. The rope conveyor is 1410 ft. long. This is supposed to be the longest retarding conveyor ever installed.

The problem of lowering the coal from the pit mouth on a hillside into the railroad cars is best solved by a retarding rope and button conveyor which delivers the coal at an even flow without any shocks to the screens or loading chute. Other methods such as inclined planes or monitor cars have the disadvantage of being intermittent, and as a consequence require storage bins and repeated dumping of the coal, besides additional labor. The longest retarding conveyor of this type ever installed, to my knowledge, was designed, built and erected by the Fairmont Mining Machinery Co. for the Carbon Coal Co., at Carbon, W. Va.

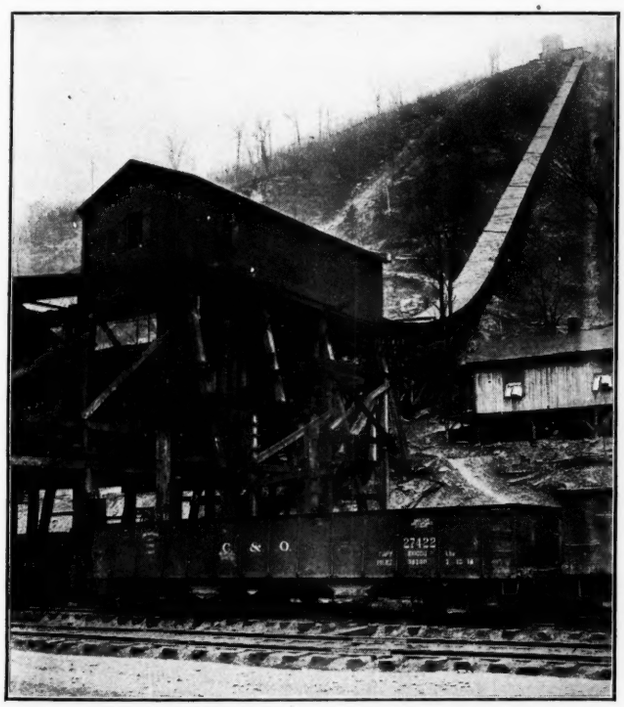


Fig. 1. Carbon Coal Co.'s Tipple and Retarding Conveyor

The equipment consists of a headhouse containing dumps, feeder and picking table, the conveyor gallery down the hill, and the tipple proper, which is equipped with shaker screens and loading booms, insuring careful screening and loading of the coal. Fig. 1 shows a general view of the plant taken just after it was put in operation.

The method of operation is as follows: Coal is brought in mine cars to the headhouse and dumped over a short chute and a bar screen 6 ft. wide and 12 ft. long, equipped with 2-in. Akron screen bars which can be set at 1 in. or 2 in. clear mesh. The slack slides over a chute onto a picking-table conveyor, while the lump is gathered in a weigh basket suspended from a tipple scale. After being weighed the lump is lowered into a feed hopper with a capacity of about two mine cars. Under this hopper runs a short apron conveyor feeder consisting of single-beaded flights mounted on two strands of steel thimble roller

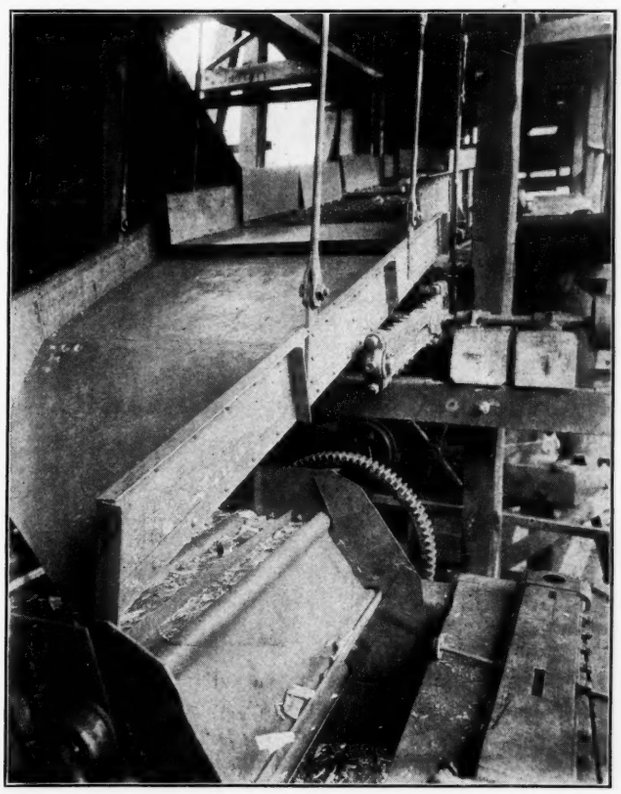


Fig. 2. Coal Is Discharged from Small Shaking Chutes to Loading Booms

chain. The feeder carries the lump coal out of a 3x3-ft. opening and delivers an even flow of coal onto the picking table. As the slack has been put on the picking table before, it acts as a cushion for the lump and facilitates picking at the same time. The picking table is made of double-beaded flights mounted on two strands of steel roller chain. It is 5 ft. wide in order to spread the coal as much as possible, has a clear picking space of 15 ft. and runs at a speed of 30 ft. per min. After being picked the coal is discharged over a suitably formed chute into the rope and button conveyor.

Fig. 3 shows the end of the picking table with discharge chute and the conveyor rope with buttons attached, running in a steel-lined trough. The rope conveyor has a total length of 1410 ft. between sprocket centers and a slope down the hillside of 31 deg. The cable is 1¼ in. diameter and runs at a speed of 80 ft. per minute. The buttons are 12 in. in diameter and spaced 4 ft. apart.

*Engineer, Fairmont, W. Va.

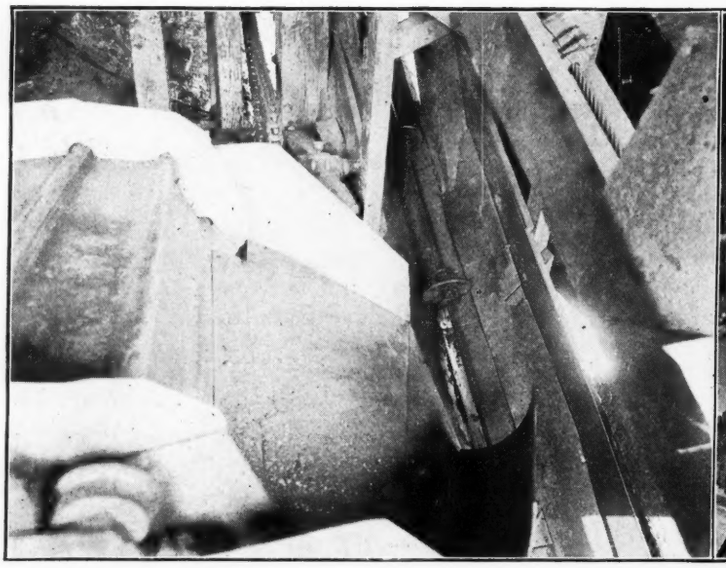


FIG. 3. END OF PICKING TABLE SHOWING DISCHARGE TO ROPE CONVEYOR

FIG. 4. LENGTHWISE VIEW OF ADJUSTABLE LOADING BOOM

Head and foot sprockets have four pockets each for the engagement of the button and are of a diameter of 5 ft. 1 in. The engaging teeth are flexible and made of manganese steel to avoid wear and tear. The conveyor is driven at the top end by two gear and one belt reductions from a General Electric 35-hp., 3-phase, alternating-current, 60-cycle, 250-volt motor, which is controlled by a self-starter with pilot circuit control.

By simply throwing in or out a knife switch at the trimmer's platform or near the picking table the motor can be started or stopped. When the conveyor is fully loaded the motor will generate power back into the line, and an electric shunt brake is provided to keep the conveyor from running away in case the power supply should fail; as an additional safeguard a hand-operated emergency brake has been installed.

COAL IS SEPARATED INTO FOUR SIZES

At the lower end of the rope and button conveyor the coal is delivered to a set of shakers equipped with slack, nut and egg stepped screens 5 ft. 6 in. and 6 ft. wide. These are driven by eccentrics on a drive shaft running at 100 r.p.m., in turn driven through one gear and one belt reduction from a 35-hp. motor, a duplicate of the conveyor-drive motor. The screens separate the coal into four sizes—slack, nut, egg and lump. Slack and nut are delivered by chutes into bins or cars, while the egg and lump coal are discharged onto small shaking chutes with bevel discharge end, thus assuring even distribution on the loading booms without breakage.

There are two loading booms for both egg and lump coal, each 4 ft. wide and running at a speed of 40 ft. per min. Each loading boom consists of a double-beaded apron conveyor with removable sides. The hinged part is counterbalanced and suspended at the outer end by a bail from a rope leading to an electrically driven hoisting rig. The hoisting machinery is operated by a small motor and raises or lowers the boom at a speed of 15 ft. per minute. The shaker screens are equipped with veils so that any desired mixture or run-of-mine can be made.

For each loading-boom track a Fairmont railroad car retarder has been installed, which controls the railroad cars from the trimmer's platform and insures even loading and practically no drop of coal to the car. When desired, run-of-mine coal can be loaded over an emergency spiral loading chute into cars on a slack track without operating screens or booms.

The tipple equipment has a capacity of 200 tons per hour and has been in successful operation since its installation. The coal being very friable, every possible precaution has been taken to avoid unnecessary drop and breakage, and this plant may be considered one of the most uptodate of tipple equipments.

German Byproduct Practice under War Conditions

The importance of the byproducts of coke and gas works in relation to political economy in Germany has grown since the outbreak of the war. Such byproducts as benzol and tar oil replace gasoline, the importation of which has ceased, and sulphate of ammonia is taking the place of Chile saltpeter, to be used as fertilizer and in the manufacture of explosives.

For these reasons efforts are being made to increase the use of coke, in order to obtain the above byproducts. In such a way, the government buildings and railways, etc., are now obliged to use coke, together with fuel of other kinds, and orders have been issued regulating the proportion of coke to be used in the mixture. German manufacturers have followed the example of the government.

Although the change from coal firing to coke represents some difficulties, proper methods have been adopted to equalize the minor calorific value of coke. Factories with stationary boiler plants have either increased their working hours or have increased the heating surface of the boilers, and with the help of forced draft the desired horsepower can be attained.

Gas coke possesses a higher calorific value than coke-oven coke, and experience has shown that in firing locomotives, a mixture of two-thirds coal and one-third coke will insure satisfactory operation.

Loading Bituminous Coal

By Miner Raymond*

SYNOPSIS—Modern arrangements now enable coal to be loaded into large railroad cars without subjecting the fuel to any destructive fall. Details of a new-style loading boom.

The problem of minimizing breakage in the preparation of lump coal for the market has been the subject of much discussion in recent years and has had a marked effect on tipple design. It is not in the scope of this article to analyze the trade conditions which have made this point of such importance to coal producers, but rather to sketch the development of one feature of tipple design directly traceable to this insistent demand for less breakage.

From the time the coal enters the dump as run-of-mine until it reaches the end of the last screen as lump it is subjected to no great shock and the breakage is so slight as to be of little consequence. At the start, the lumps are cushioned by the finer coal, and progress over the shaking screens is no more than a slide, urged on by the vibration of the screens. In transferring the lumps from the last screen to the car, however, it is a case of "letting 'em down easy," and the old quotation, "If you can't make it easy, make it as easy as you can," is not applicable; for it must be "easy" in the fullest sense of the word if breakage is to be avoided.

The problem is requiring more and more attention with the growth of railroad equipment, as constantly greater clearances over the rails have been demanded owing to the development of coal cars from low 30-ton wooden gondolas to towering steel "hopper bottoms" of 60-ton capacity. In many cases, clearances for the passage of big locomotives are now demanded, whereas not very many years ago cars were backed in for loading. This was the case in the early tipples, wherein a straight chute was extended from the lower screen to a point 3 ft. above the car and 2 ft. to one side of the center line of the track. This allowed a drop of 3 ft. greater than the depth of the car for the first coal loaded in successive positions of the car as it was moved along under the chute.

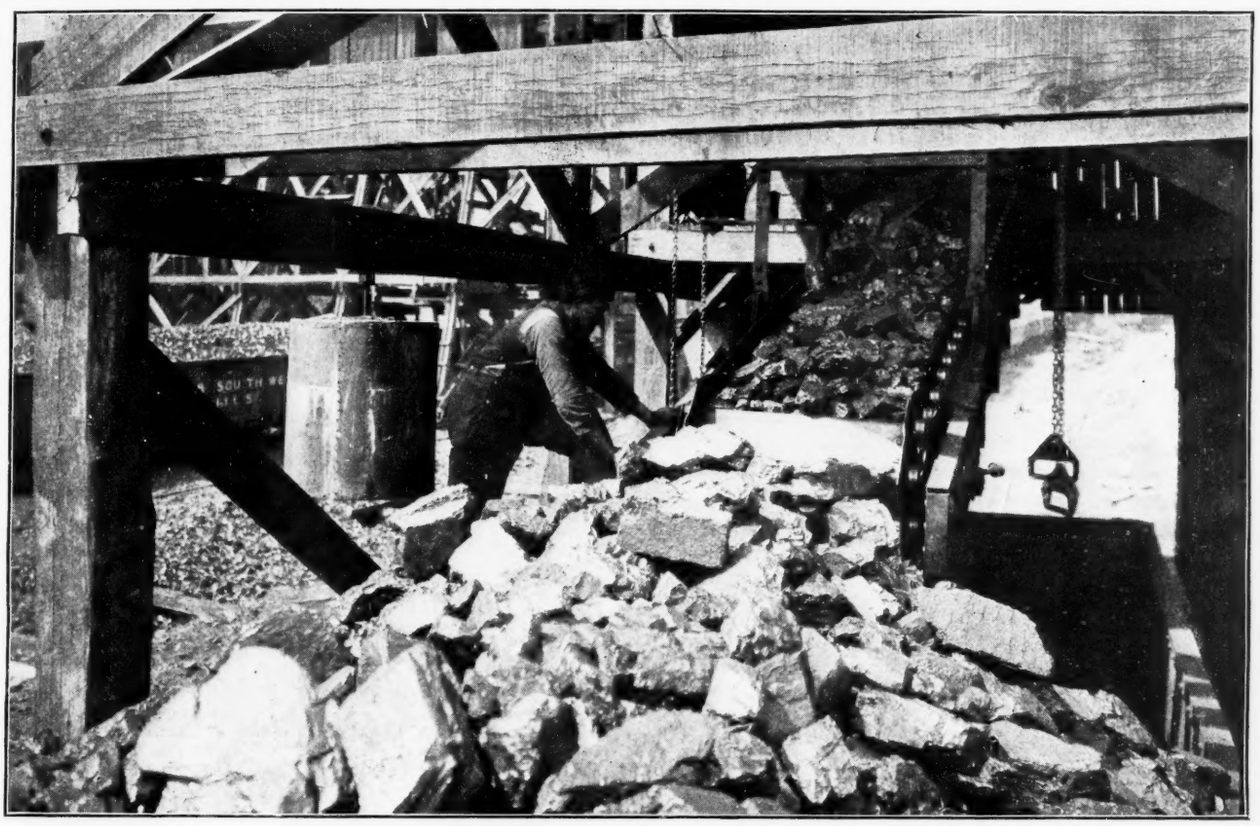


Fig. 1. Loading Boom Discharging Lump Coal to a Car. This Shows Also the Loading Boom Counterweight and the Handles Controlling the Boom Hoist

The Stages of Development

The first step in "easy loading" was to extend the end of the lower screen into a 90-deg. spiral chute terminating 3 ft. above the center of the car. With this arrangement, the coal flowed in a direction parallel to the rails and as soon as a "cone" of coal was formed in the end of the car, the latter was gradually moved along so that the lumps rolled down the pile already formed, but the drop was still as great as before, until the end "cone" was formed.

*Tiffin, Ohio.

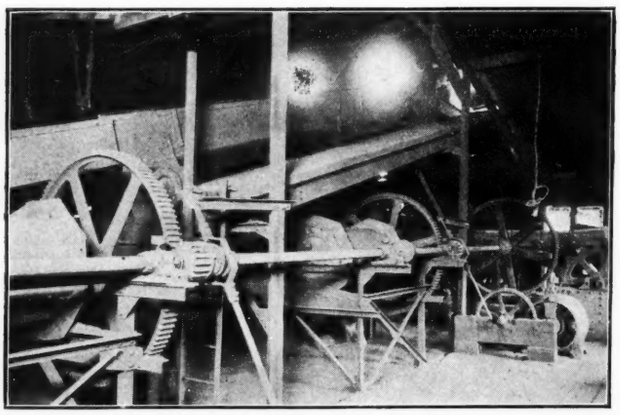


FIG. 2. ARRANGEMENT FOR DRIVING TWO BOOMS FROM ONE MOTOR

When the high 50-ton cars began to appear, the rail clearances were increased and the objectionable drop became correspondingly greater. A sliding extension was then added to the spiral chute, and this arrangement overcame to some extent the breakage experienced in building up the first cone, but other than this it had no marked advantage over the spiral chute.

The modern method of loading lump is an outgrowth, not only of the earlier chutes outlined in preceding paragraphs, but also of the development of methods of picking. At first the coal was picked on the car, and later picking-belts made their appearance. About the year 1897 the old Tom's Creek Coal & Coke Co. picked the run-of-mine before screening, and used for this purpose a double-beaded apron conveyor consisting of steel pans carried between the strands of chain, the conveyor being practically identical in general construction with those used today. In the next few years, designers of tipples placed this steel picking table immediately below and at right angles to the end of the lower screen, replacing the spiral chute, but retaining the extensible chute for loading the cars.

The next step in the solution of the problem brings us to modern practice. The picking table was extended to a suitable length and hinged at some point between head and foot shafts, the upper or stationary part acting as the picking table and the lower or hinged portion being mounted on a steel boom, which could be raised to a level position when not in use or lowered into the car while loading. Driving mechanisms and raising and lowering devices for this type of loader have been brought to a high state of mechanical efficiency.

The accompanying cuts illustrate some of these modern loading booms, which were made by the Webster Manufacturing Co., of Tiffin, Ohio. Fig. 1 depicts a car nearly full of lump at the tipple of the United Collieries Co., St. Charles, Va. The illustration clearly shows how the demand to "let 'em down easy" has been met. With an "empty" in position, the boom is lowered into one end of the car floor and gradually raised as the cone grows to its limit. The boom is held stationary at this point and the car is moved along until it is loaded to capacity with unbroken lump. There is no chance for breakage. Fig. 4 is from a photograph of the boom used by the Howard Colliery Co. at its Chattaroy, W. Va., tipple, and here the boom is shown free of coal and fully raised to permit the passage of a locomotive on the track beneath.

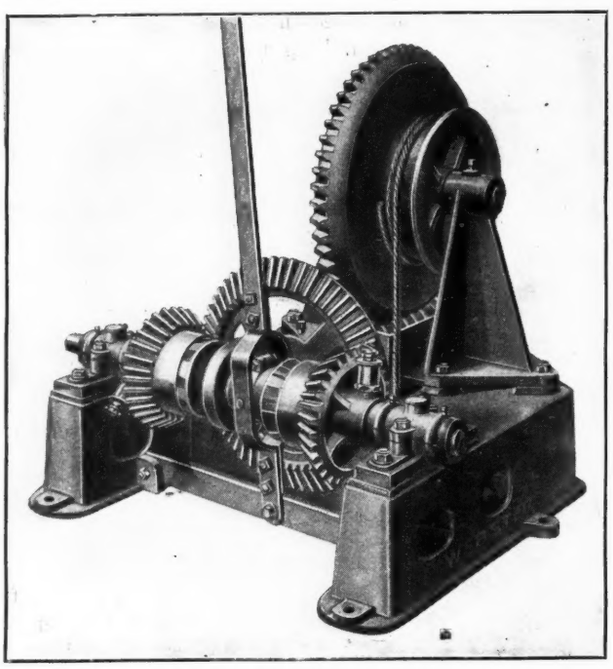


FIG. 3. THE BOOM HOIST

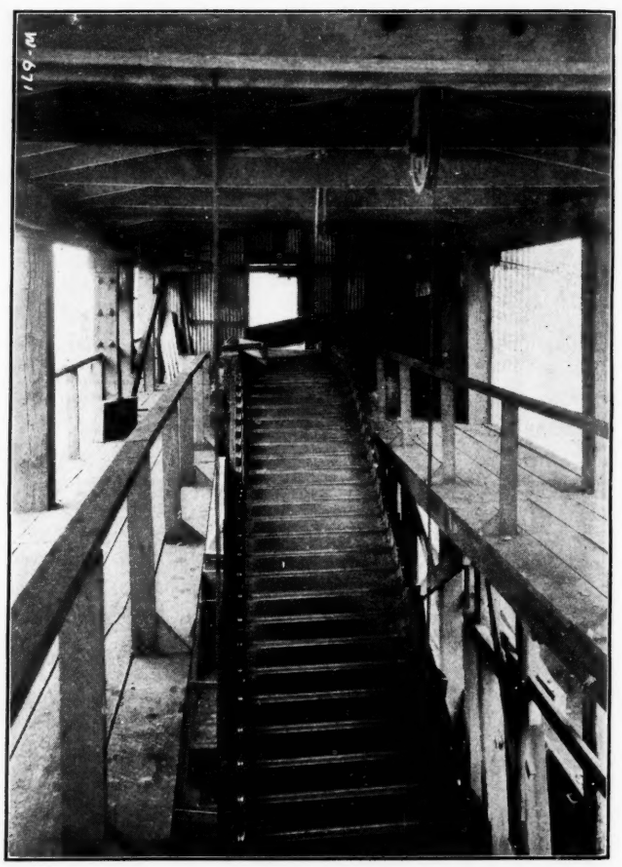


FIG. 4. VIEW LOOKING UP LOADING BOOM

HOW THE BOOMS ARE OPERATED

In general, these booms consist of beaded steel aprons mounted between two strands of steel-bar roller chain,

the inside link of the chain being extended to form the end of the pan (Fig. 4). The conveyor, with its head and foot shafts and their sprockets, is carried on a structural steel frame hinged at a point suitable for dividing the mechanism into its two component parts of stationary picking-table and loading-boom. The lower end of the boom is fitted with a bail (Fig. 4) with wire ropes leading over guide sheaves to the counterweight (Fig. 1) and to the boom hoist (Fig. 3). These hoists are reversible, the controlling lever serving to shift a double cone-clutch into one or the other of two bevel pinions which are always in mesh with a bevel gear. This gear, in turn, operates the winding-drum through a worm and wheel. This worm-gear drive also serves as a lock for the hoist in any position. The control lever is operated from the car by the handles shown in Fig. 1.

The apron is driven at the upper end. Fig. 2 shows the arrangement for driving two booms from one motor, with clutches on the driving pinions so that either one may be operated as may be desired. This view was taken in the tipple of the Standard Pocahontas Coal Co., at Caples, W. Va.

The large number of these loading-booms that have been installed in the last few years proves conclusively their great value to the mine that desires to prepare coal so that it will recommend itself to the dealer or consumer.

Crushing Coal at the Mines

By M. J. Williams*

SYNOPSIS—Many industrial plants are equipped to burn screenings, and screenings only. The supply of this grade of fuel fluctuates considerably, and but few mines are equipped with storage facilities. To these, provision for crushing the larger sizes is an economic necessity when the demand for screenings is large and the supply small.

The subject of the crushing of coal at the mines is one that most operators should be interested in for the very good reason that with the adoption of the crusher they have screenings at their command the year round.

In my opinion a crusher located at some convenient place in the tipple is as necessary to the average mine as any other piece of machinery. I shall no doubt meet with much opposition on this point as most mine owners have in the past put the crusher proposition up to the other fellow who uses the coal, to such an extent that perhaps less than 15 per cent. of the mines throughout the United States are now equipped with crushing facilities.

The purchaser of coal should be in a position to buy such fuel as he may require, but he should be compelled to pay a reasonable price, and until the mine operators adopt in some cases crushers and in others storage facilities, they cannot expect to command the right prices for their smaller grades of coal.

It is common knowledge that during the fall, winter and spring seasons the average mine is shipping such quantities of lump and sized coal that it accumulates a large tonnage of screenings or the finer grades of coal. These grades are used principally in chain-grate or other types of mechanical stokers, and as all mines are reaching their maximum production at this season of the year, it is quite natural that the market is flooded with screenings and the prices are low. Then during the summer months, when the demand for lump and sized coal falls off, the mines quite naturally cannot produce any great quantity of screenings; hence the price goes up and the production down.

How many operators have found themselves short on screening contracts in the summer and wished that they had saved some of the hundreds of tons of this fuel they dumped on the market the previous winter? I dare say that 80 per cent. of our mine owners have often come face to face with this situation.

In Chicago and vicinity ordinary screenings in the fall, winter and spring sell at ridiculously low prices, perhaps reaching at times as low as 20 cents per ton and from that price up to 50 and 60 cents; in fact, I am informed that one large power company last fall would not offer over 20 cents for screenings and got about all it could store at that figure.

At the present time screenings range anywhere from 80 cents to $1 per ton, for the scarcity is now being felt, and in another month or six weeks the percentage of screenings at the mines will be low and the prices higher. This condition I believe to prevail at the average mine.

I grant that many of the larger mine operators have realized the situation for years and have taken steps to protect their interests by storing some of their screenings during the busy season and holding them for the summer months, rehandling them into cars as desired, but the average mine, especially the smaller operation, is not prepared to store screenings, nor has the owner the inclination or capital to do so.

Storage Is Natural Solution of This Problem

Storage naturally is the greatest step toward relieving the situation, but there are three important factors to be considered in the matter of storage:

1. The enormous space required to accommodate any considerable supply of screenings.

2. The cost of necessary handling machinery for reloading screenings into cars. This will average, I would estimate, from $10,000 to $15,000.

3. The element of danger from fire in the screenings pile and the deterioration of coal so stored.

There are perhaps many other factors in this storage proposition with which I am not familiar, but I am of the opinion that storage is necessary to every mine that has the room, capital and inclination.

This coal, I am quite certain, can be rehandled from the storage pile to the cars at a price in the neighborhood of 3 or 4 cents per ton. In some instances, in large operations the cost is no doubt less, and in the

*Williams Patent Crusher & Pulverizer Co., Old Colony Building, Chicago, Ill.

smaller operations it may reach a higher figure, but 3 to 4 cents I believe to be a fair average. Of course, this rehandling must be done mechanically as far as possible, as loading such coal by hand would reach at least 15 to 20 cents per ton.

It is my opinion that the storage proposition wherever it can be employed will be a prime factor in supplying the demand for screenings the year round and that it will be the means of keeping the price of this product at a more stationary figure, and one in which there will be at least a reasonable profit. The large industrial plants, I am sure, would much prefer to buy their coal as they require it and not put in the expensive and extensive storage systems that they are now compelled to employ. Especially is this true when conditions in the coal trade are normal.

The operator who is not prepared to use storage for want of sufficient space, capital or desire is the man most interested in the crusher. There are already many large industrial plants with sufficient storage to take care of the surplus screenings of the man without storage at his mines, and by the adoption of the crusher these operators can make small sizes, crushing at such times as they are not screening this product from their mine product and thereby filling throughout the entire year their screenings contracts at a substantial figure.

Many Types of Crushers Are Suitable

There are many different crushers that may be used for this purpose, such as the single roll, double roll, breakers with stationary arms and the hammer crushers, any of which will answer the purpose. Those who have used the hammer type, however, consider it the best machine by reason of its extra heavy construction and its facilities for trapping or throwing out the stray iron so often disastrous to the roll crusher, and also by reason of its adjustability. The hammer crushers may be adjusted and manipulated to crush in extreme cases as coarse as 8 in. in size and from that size down to ¾ in. This same crusher may be set at any intermediate point between these limits, making a large number of given sizes and with a minimum of fines.

Of course, one must thoroughly understand the hammer mill and its possibilities in order to accomplish these results on the same crusher, but it can be done and is being done every day in the year. Hammer crushers are made in sizes to meet any capacity desired from 10 tons per hour up to 500 tons per hour.

The first question that arises in the mind of an operator considering a crusher at the mine is the cost of crushing. This compares quite favorably with storage and rehandling, for coal may be crushed at approximately 2 to 3 cents per ton, including cost of power, maintenance, interest on investment and depreciation.

The cost of power is around ¾ to 1 cent per ton, depending upon the price of power at the mine. Oil and maintenance including labor and adjusting is ½ to 1 cent per ton, while interest on the investment and depreciation should not exceed ½ cent per ton.

These figures I believe to be a fair average. One hundred tons of coal may be crushed per hour with less than 40 hp. As the journals are self-oiling the oil is used over and over again, and since the crusher is substantially built and adjustable, replacement of parts is but a small item, and renewal from natural wear and tear is a matter in some cases of 6 months to 1 year. As the crusher is generally located in some convenient place in the tipple the coal enters and discharges automatically, no labor being required nor are skilled mechanics necessary to attend the machine. The engineer can give it a few moments of his time at the end of each day's run.

Interest on the investment and depreciation are exceptionally small, as the sum involved in the purchase price, installation and motive power for a 100-ton-per-hour crusher does not exceed $1200 to $1500. The life of the crusher proper is unknown. All of the hammer coal crushers built 20 years ago are still in service and bid fair to continue in service indefinitely. Crushers should be properly taken care of, however, just the same as any other piece of machinery.

A Common Mistake

One great mistake made by those designing tipples is that they do not figure on the installation of a crusher in the future; consequently most crushers installed in the ordinary tipple must be set at such point as can be found for them, which in a large percentage of installations is a space not adapted to a crusher if maximum results are to be obtained. This is especially true of poor drives, inadequate head room for proper feed and insufficient fall or discharge of the coal from the crusher. I therefore suggest to all those building or designing tipples to arrange at some convenient point a suitable space for a crusher, with ample head room, proper motor or belt drive and proper discharge, for it is only a matter of time when from 40 to 60 per cent. of the bituminous mines throughout the country, especially those furnishing coal to industrial plants, will be equipped with crushers.

The crushing of coal at the mines is not a new proposition, especially at those developments controlled by large industrial corporations that cannot secure enough screenings or fine chain-grate coal to supply their boiler plants. For instance, the mines furnishing coal for the Carnegie steel plants have crushed at three or four mines almost all the coal to a ¾-in. to 1¼-in. product for over 10 years and have these crushers located over both the rail and river end of each tipple. This is only one of many instances where coal is crushed at the mines.

Those industrial plants which now employ crushers at their power plants have been forced to do so principally for the reason that at times they could not secure sufficient screenings, and as an added measure of precaution have crushed lump or run-of-mine to screenings size and stored it at a time when a coal strike threatened or when there existed a scarcity of cars due to bad weather. The ordinary industrial plant will never employ these precautions, and in my opinion it is up to the coal operator to prepare his mine to deliver that product which is desired by his customer the year round, bearing in mind of course a profit on such business. There are many of us of course who would take care of our trade regardless of the cost when our customers were temporarily "up against" some unforeseen shortage. This does not apply to the coal trade alone, but to any business venture the owners of which desire to succeed and prosper. The crushing of coal may be made profitable, however, and in my opinion is a necessity at many mines.

Coal Preparation in the Rocky Mountain Field

By Benedict Shubart*

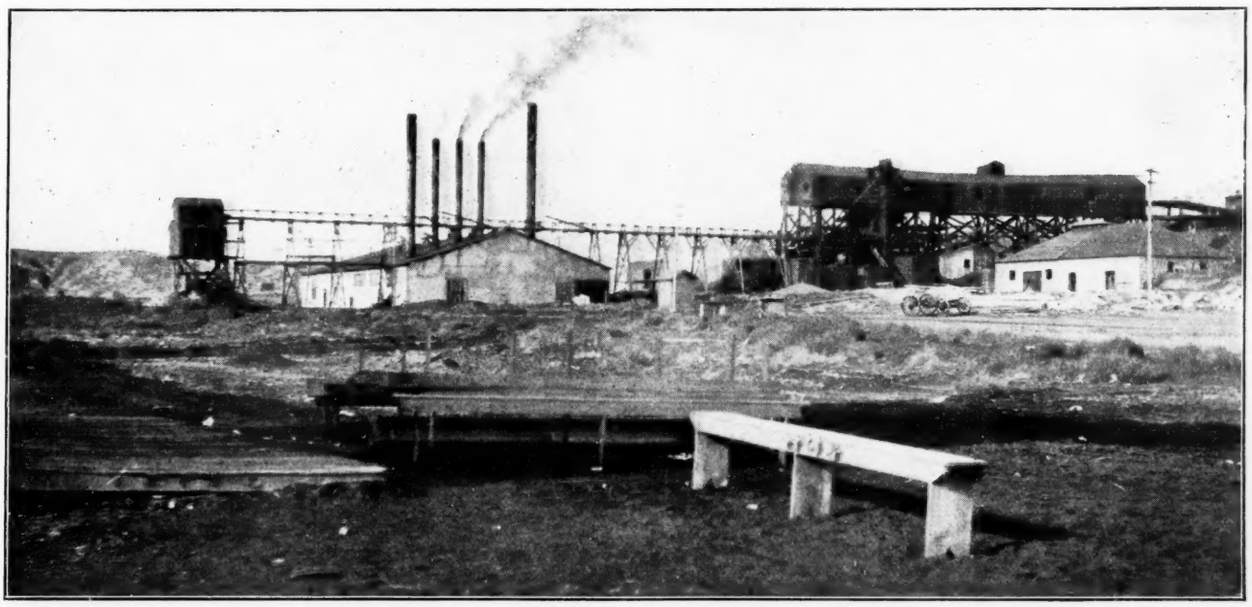
SYNOPSIS—A district where the production of lump coal is the chief requirement. Box-car loaders are employed. Details of rescreening and washing methods.

In no section of the United States is the preparation of coal more elaborate than in the Rocky Mountain district. An Eastern operator entering this territory will almost always commence with a criticism of the seemingly ridiculous care that is taken both in the handling and the screening of the mine product, but a brief study of the market conditions will show why all this care is necessary and profitable.

With the exception of three or four months in the fall, there is practically no demand for steam coal. During the months of September, October, November and December, the sugar factories absorb a considerable amount of slack coal, the amount used by each factory being substantially the slack resultant from a production of 400 tons of coal per day. Thus one mine can serve practically two factories or even more.

This forms the largest single market for slack coal. Aside from this, there is a comparatively slight demand. The Rocky Mountain country is not yet a manufacturing district; and besides, the water-power resources have been developed to a high degree, and many small factories are driven by electricity derived from water power.

It is clear that there must be an overproduction of slack coal which must be disposed of at an expense additional to the cost of mining; furthermore, the sale of this slack tends to lower the price of the fine coal which ordinarily has a market.



Mine of the Big Horn Collieries Co. at Crosby, Wyo.

Demand Is for Large Coal

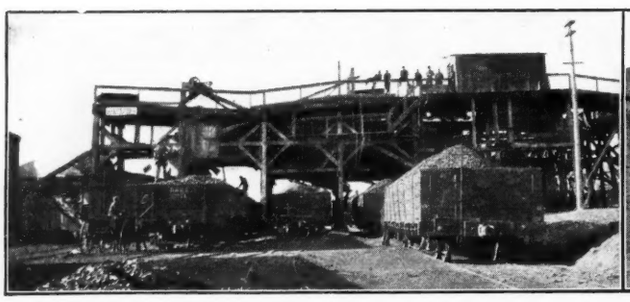
The Rocky Mountain West is a country of long distances. California is quite a way from Colorado, Utah and New Mexico, whence it gets its coal. The long grind to market in railroad cars causes a considerable breakage in the coal. With a freight rate varying from $1 to $6 per ton over the long hauls, and substantially no market for the fine coal which must be screened out before the large coal can be sold, the reason for the demand for a perfectly prepared large coal is plain.

The domestic market refuses to take any but the largest coal. Lumps of coal weighing from 150 to 300 lb. are frequently shipped, and the cry from the consumer is always for larger coal.

Starting in the mines, the question of the economy of shooting off the solid has been settled by the slack question. Small coal cannot be sold, and furthermore costs money to dispose of, so the coal must be undercut or sheared to increase the percentage of lump and nut coal. This unquestionably makes for safety in the mines by decreasing the amount of powder used, minimizing the windy shots and preventing to a large extent the shattering of the roof.

Of course in the coking-coal districts around Trinidad, Raton and Dawson, the slack can be made into coke, and furthermore makes a very good steam coal, so that in this district the slack question is not so important. The preparation of the other coal, however, is the same as in the rest of the Rocky Mountain district.

*Engineer, Denver, Colo.



ROBINSON TIPPLE OF COLORADO FUEL & IRON CO. AT WALSENBURG, COLO.

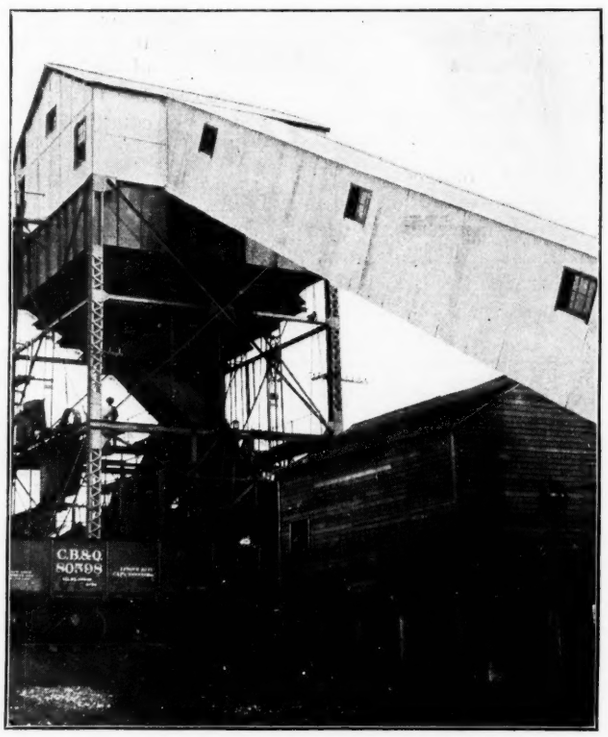
NO. 4 TIPPLE OF THE KEMMERER COAL CO. AT KEMMERER, WYO.

Every care is taken on the tipple to prevent breakage. Most of the modern tipples are now installing the power-driven type of rotary dump, not only because this permits the use of a solid-end car, which is safer and more economical than the old-style cars, but because it provides a method of dumping with the least possible amount of breakage. Gravity screens are used only in the smallest of wagon mines. Practically every modern tipple is equipped with shaking screens of some variety, and there are one or two installations of Marcus screens. Some of these installations are equipped for making quickly and easily the widest variety of sizes.

In the Utah field substantially 12 different grades are required, as follows: Run-of-mine coal, lump coal over 1½-in. perforations, lump coal over 3-in., lump coal over 5 in., lump coal over 8-in., slack coal through 1½-in., pea coal through 1½-in. and over ½-in., dust through ½-in., nut coal through 3-in. and over 1½-in., egg coal through 5-in. and over 3-in., stove coal through 5-in. and over 1½-in., California lump coal through 8-in. and over 3-in. These are roughly the sizes of coal demanded by the trade, the size of the perforations varying at different mines.

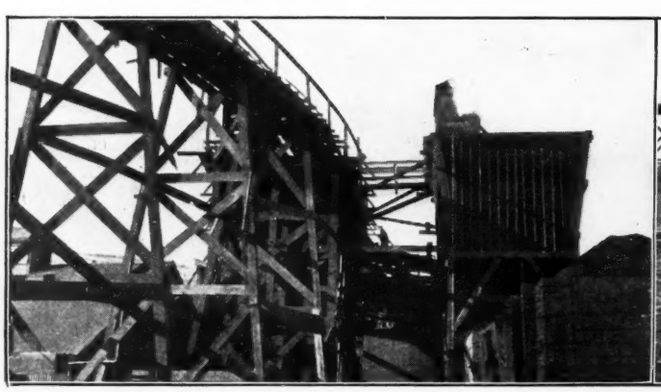
RESCREENING PLANTS

Of course all these sizes are not made on the shaking screens. Each plant is supplemented by a rescreening plant, with its elevators, screens, and bins for storage. In some instances only the slack coal is raised for rescreening, in others the nut and slack coal, and in some instances even the egg, nut and slack coal. For this work in the larger mines the very rugged continuous-bucket elevator mounted on double strands of steel rolling chain is used, the type being shown by the accompanying illustration.

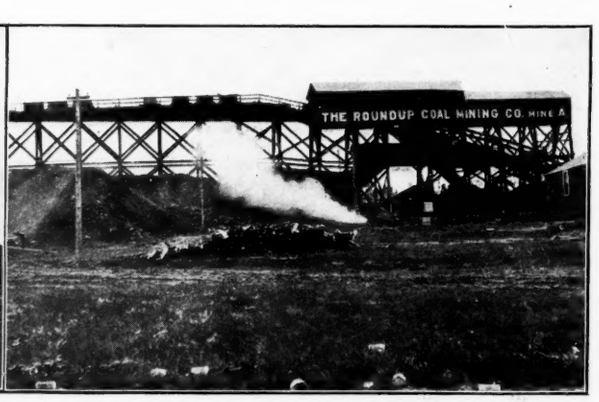


PLANT OF CARNEY COAL CO., CARNEYVILLE, WYO

For the greater part, rotary screens are used, and they do very good work excepting in the case of damp coal,



TIPPLE OF OAKDALE COAL CO., OAKVIEW, COLO.

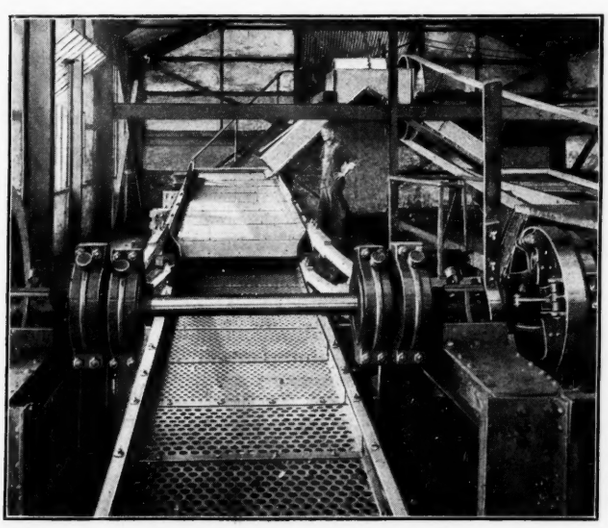


TIPPLE OF ROUNDUP (MONT.) COAL MINING CO.

where it is exceedingly difficult to keep the small perforations clear. These screens vary in size from 4 ft. in diameter by 12 ft. long to 5 ft. in diameter by 20 ft. long, and in some mines as many as four of the latter are installed to secure efficient screening.

Some recent installations use the Parrish screen. This is a shaker screen of peculiar design, the frame consisting of hickory or ash rigidly attached to elastic hangers or supports. The eccentric rods are also rigidly attached to the screen, the resulting motion being a sort of a whipping action, which tends to break up the masses of coal and to keep the screens clear.

A further complication in the preparation of coal in this district is the necessity for loading box-cars. Lump coal is invariably loaded into box-cars over the greater part of the territory. The same applies to nut coal, and it is even necessary in some cases to load coal as small as pea coal into box-cars. The reason for this is twofold—firstly the inability of the railroad company to supply sufficient coal cars and secondly the long hauls. The trains are obliged to stop at a good many division points



A Shaking Screen Installation in the Rocky Mountain Field

before reaching their destination, and each division point takes its toll in the way of stolen coal, the total shrinkage being considerable.

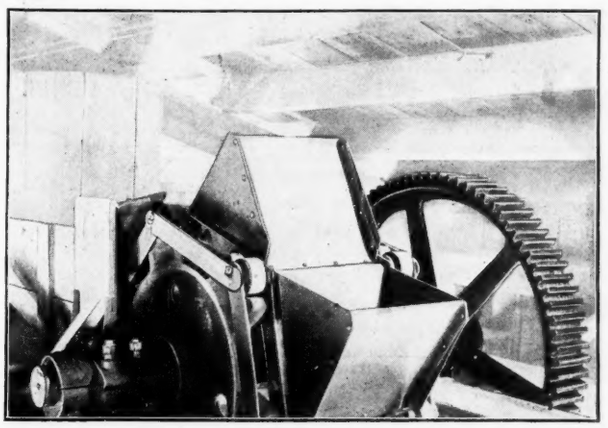
For easing the coal gently into the cars some very elaborate chutes are used. At the end of the shaking screen is usually a swinging shaking chute, which may be raised or lowered to adjust it to the height of the different cars, or else a picking-table type of conveyor is installed, pivoted at one end so that it can be adjusted for height.

Box-Car Loaders Are Used

Of course, box-car loaders are a necessity where the mine tonnage is of any moment. The Victor, Christy and Ottumwa loaders are all in use in the West, and the Manierre loader, which promises to handle the coal much more gently than any previous loader, is rapidly coming into use. Loaders are frequently installed in the larger mines for loading nut coal.

Few tipples are built with less than four loading tracks, and most of the tipples have five. This makes a very long tipple structure and necessitates carrying the coal a considerable distance before the final product is discharged into the farthest car.

Picking coal is not extensively practiced in the West. There are a few picking tables installed, but the picking is not nearly so thorough as in the Eastern mines. The infrequency of picking may be partly accounted for by



Head of Elevator at Plant of Panther Coal Co., Panther, Utah

the fact that there is so much thick and clean Western coal easily at hand that the dirtier seams have not yet been opened up.

Many of the Western operators feel, too, that picking is only a makeshift, and where it is essential that rock be cleaned from the coal, the installation of a small washer has proven much more satisfactory and more economical in operation than the maintenance of picking tables.

Steel construction for tipples has not yet taken hold in the West very firmly. Several steel tipples have been constructed, and several more are in the process of construction. The trend of the mining law is to prevent the installation of inflammable structures near the mine mouth, and legislation in some of the Rocky Mountain States, together with threatened legislation in others, is proving a great factor in the design of tipples.

Mining Companies Purchase New Equipment

A great many people recently have contended that business of all kinds is very bad. There are those, however, who take a different view and who state that conditions in their particular line are fairly prosperous. We have all heard that the coke business is improving rapidly, and it is interesting to know, also, that bituminous operators in many states have taken an optimistic stand and are preparing for an active trade this coming fall.

The Roberts & Schaefer Co., of Chicago, has received orders during the past six weeks for more than $300,000 worth of tipple and mine construction work. The prospective purchasers of this equipment are: Harty Coal Co., Mullens, W. Va.; Cottonwood Coal Co., Stockett, Mont.; Oregon-Washington R.R. & Navigation Co., Seattle, Wash.; Ayrshire Coal Co., Oakland City, Ind.; Oliphant-Wasson Coal Co., Vincennes, Ind.; Lorain Coal & Dock Co., Columbus, Ohio; Louisville & Nashville R.R. Co., Louisville, Ky.; Carter Coal Co., Coalwood, W. Va.; Elkins Coal & Coke Co., Morgantown, W. Va.

Eastern Ohio Mining Scale

SYNOPSIS—The agreement between the Association of Pittsburgh Vein Operators of Ohio and the United Mine Workers of America with reference to the operation of their mines in Belmont, Harrison and Jefferson Counties, Ohio. This agreement went into effect May 11, 1915, and will expire Mar. 31, 1916.

Following are the rules and regulations of the eastern Ohio scale somewhat condensed:

Rule 1. It is agreed that all local rules, regulations and customs heretofore established in conflict with this agreement are hereby abolished.

Rule 2. The management of the mine, the direction of the working force and the right to hire and discharge are vested exclusively in the operator, and the U. M. W. of A. shall not abridge these rights. It is not the intention of this provision to discourage the discharge of employees, or the refusal of employment to applicants because of personal prejudices or activity in matters affecting the U. M. W. of A. If any employee shall be suspended or discharged by the operator, and it is claimed that an injustice has been done, an investigation shall be made promptly by the mine committee and the mine superintendent, and if they fail to agree, the dispute shall be referred to the operator affected and the officers of District No. 6 or their representatives.

If the finding is that the said employee was wrongfully discharged or suspended the company then shall reinstate him and pay full compensation for the time lost through such suspension, based on the earnings of the said employee prior to his being discharged or suspended.

[The provisions of this rule contradict one another and may be the cause of much trouble later.—Editor.]

HOURS OF LABOR

Rule 3. The 8-hr. day of 48 hr. per week as provided in the Columbus day-wage scale of 1898 is hereby reaffirmed. The following holidays are recognized: Sundays, New Year's, Washington's Birthday, Apr. 1, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas.

(a) An 8-hr. day means 8-hr. work in the mines at usual working-places and includes all classes of labor. This shall be exclusive of the time necessarily expended in reaching such working-places in the morning and in departing from the same in the evening. The drivers shall take their mules from the stable to the passway where they receive the car from the motor and return the same in like manner to the stable. Motormen and tripriders shall be at the passway where they receive empty cars at starting time, and the time necessarily expended in taking mules and motors to the passway in the morning and returning the same at night shall not include any part of the day's labor, the working day of these men beginning when they reach the change or parting at which they receive empty cars, and in no case shall their time be docked when waiting for cars at the point named.

(b) All employees must be at their working-places at starting time on all days that the mines operate and shall remain there full 8 hr. or during such part of the 8 hr. as they have work to perform.

(c) Work shall begin at 7 a.m. and continue till 11 a.m. Not more than 30 min. shall be taken for dinner, and work will recommence at 11:30 a.m. and be concluded at 3:30 p.m. Central standard time. (This rule may be modified by mutual consent.

(d) When any places on any territory are not cut and the machine runners have not worked as many hours as the mine has been operated, by reason of breakdowns, sickness or absence of runners, the machine runners shall work on idle days or overtime until they have made up the time lost.

DISCIPLINE

Rule 4. No strike shall occur at any mine, except for failure to pay on the regular payday, without explanation.

(a) Should any officer or officers of the U. M. W. of A. or any member or members thereof, employed at any time, cause the mine or part of the mine to be shut down in violation of this rule, each member of the United Mine Workers of America employed at said mine who does not continue at work shall have deducted from his earnings $1 per day for each day or part of a day he remains idle.

(b) Should any operator or his representative lock the men out for the purpose of forcing a settlement of any grievance or cause the mine or a part of the mine to shut down in violation of this rule, he shall be fined $1 per employee for each day or part of a day during which the mine is thus thrown idle.

(c) All moneys assessed against employees under this rule shall be collected from the pay for the half-month in which the violation of the rule occurs or from the first money due thereafter. All moneys assessed against the operator for violation of this rule shall be turned over to subdistrict No. 5 of the U. M. W. of A., and all moneys assessed against the miners shall be turned over to the Association of Pittsburgh Vein Operators of Ohio.

(d) In any local grievance arising at any mine the aggrieved party or parties and mine foreman shall first make an earnest effort to adjust the dispute. Should they fail to agree, the question in dispute shall be referred to the mine foreman or superintendent and the mine committee. If these then fail to agree, it shall be referred to the general manager of the company involved, or his representative, and the president of the subdistrict organization, or his representative.

Should they also fail to arrive at a settlement, the matter shall then be referred to the president of District No. 6, United Mine Workers of America, or his representative, and the representative of the A. of P. V. O. of O. If they fail to agree, the matter shall be referred to the executive board of District No. 6 and the A. of P. V. O. of O. Should they fail to settle the controversy, the matter shall then be submitted to arbitration for final disposition. The miners' representative on this board of arbitration shall be the president of subdistrict No. 5. The operators' representative shall be the commissioner of the A. of P. V. O. of O. The third member shall be selected at once by the executive board to which reference is made above. Should they fail to make a selection within one day, then the third member of the board shall be appointed by the Industrial Commission of the State of Ohio, and if for any reason it is unable to make such selection, the federal judge of the northern district of Ohio shall then appoint such third member of the arbitration board.

The matter in controversy shall be immediately taken up by this board, and a decision of a majority shall be final and binding on both parties to the controversy. The expense of the arbitration shall be borne by the party against which the decision is rendered.

Rule 5. When any employee absents himself from duty two days or more, except on account of sickness, without giving advance notice, when possible, to the mine boss or mine superintendent, he forfeits his position.

Rule 6. When a machine runner or any employee upon whose work other employees of the mine are dependent absents himself from duty without giving advance notice, when possible, to the mine boss, he forfeits his position.

Rule 7. The pit committee shall consist of not more than three members, one or more of whom must be able to speak the English language. They, like all other employees, shall remain at their working-places unless a miner and a mine boss fail to agree on prices to be paid for extra work, when they may be called in to confer with the mine boss or superintendent in deciding the dispute.

Rule 8. No meeting shall be held during working hours except by mutual agreement between miners and superintendent.

PREPARATION OF COAL

Rule 9. Both miners and operators realize that in order to insure the sale of coal it is important that it should be clean. Consequently, it is mutually agreed that the miners will produce their coal in such a manner as will not increase, either by carelessness or reckless shooting, the percentage of fine coal, and will load the coal free from impurities.

In order to insure the above results, it is agreed as follows:

(a) Before shooting, all coal must be snubbed by the miner, if the operator so requires, and the fine coal and cuttings thoroughly cleaned from under the cut. The snubbing shall be 10 in. above the cut and 3 ft. under the coal.

(b) The miner or loader shall not drill his hole on the solid nor deeper than the undercut.

(c) Unless otherwise required by the operator, the fine coal and cuttings must not be loaded out separately, but must be loaded and distributed throughout the balance of the coal, in order to keep the product of the mine uniform.

(d) Any miner or loader who is found breaking up and loading the band or other impurities with his coal shall be fined $1 for each offense or be discharged, the penalty being at the option of the operator.

(e) The operator may designate one man at each mine who shall be recognized as inspector and whose duty it shall be to inspect and clean the coal. In case slate, bone, bands, copper stone or other impurities are sent out by the miner, the inspector selected shall estimate or weigh the quantity of the impurities, and the weight thereof shall be deducted from the total weight of the contents of the car and the miner or loader sending out the impurities shall be notified.

For the second offense within any pay, he shall be fined 50c. in addition to docking. For the third and each subsequent offense within any pay the miner shall be fined $1 in addition to docking, or he may be suspended or discharged at the option of the operator. A record of all cases and a daily report thereof shall be made to the operator and local union, giving the names of the parties loading impurities, with their check numbers.

Any employee of any mine abusing or seeking to embarrass the inspector for performing his duty shall be fined $3 or discharged at the option of the superintendent. Any local union where the miners so desire may select and employ one of its members who shall act jointly with the coal inspector appointed by the operator. This clause shall be so applied that no loaders or miners shall be unjustly or unreasonably penalized thereunder.

All fines imposed under the clean-coal rule shall be collected by the operator and turned over to the president of subdistrict No. 5 and the operators' commissioner, and shall be deposited in some bank to the joint credit of both. Such deposits are to serve from time to time as a burial fund or for other like charitable purposes as may be agreed upon.

DEAD-WORK PRICES

Rule 10. Operators shall pay 25c. per yard extra for driving wet entries when the miner and the mine boss agree that the place is entitled to that classification. The mine committee and the mine superintendent shall decide the matter if the former cannot agree.

(a) Operators shall take the water out of rooms and entries and have them dry at starting time, or pay 5c. per barrel if the miner has to bail the water. Barrels shall be placed in rooms and entries, and in those entries where they cannot be placed, the water-box shall be forwarded for the entrymen to bail water in.

Rule 11. Any rolls or horsebacks coming up in the bottom or down in the top shall be paid for as follows, per yard, running with the roll:

	Cutter	Loader
From 6 to 10 in. thick	$0.00	$0.31
Between 10 and 17 in.	.10	.52
Between 17 and 23 in.	.23	.85
Between 23 and 29 in.	.36	1.08

Any rolls of greater thickness shall be paid for in the same proportion for each 6 in. Miners shall take up and remove rolls where they cross the roadway.

When the roll is so hard as to require drilling and blasting, the operator shall furnish one-half and the miner one-half the labor for drilling and blasting. No part of the compensation shall go to the cutter for rolls coming down from the top.

Rule 12. When entries and entry breakthroughs in pick and machine mines are driven double shift, 25c. extra per yard shall be paid.

Rule 13. In order to prevent falls, miners shall exercise proper care in posting soapstone in rooms. When coal is taken out by the person employed in a room and less than 750 lb. of soapstone falls, it shall be removed by the miner without compensation. When the fall of soapstone exceeds 750 lb., the miner shall be paid for removing it unless it is removed by the company. The miner shall be entitled to compensation only in case the room has been properly posted.

(a) The prices to be paid for slate or soapstone unavoidably coming down over the coal shall be agreed upon by the mine boss and the miner. If they fail to agree, the dispute shall be referred to the superintendent, mine boss and mine committee.

(b) Clay veins and spars shall be paid for, the amount being determined by the miner affected and the mine boss. If the latter fail to agree, the company reserves the right to remove the vein or spar and give the miner another place.

Rule 14. Machinemen in both wide and narrow work are required to cut the coal level and close to the bottom, and in no case shall the thickness of bottom coal left exceed 4 in. If a machine cutter leaves a sprag or bottom coal over 4 in. thick he shall be notified to remove it, and should he fail or refuse, he shall be charged 50c. for each sprag or 25c. for each run or both, the penalty being paid to the loader.

Bottom coal in all narrow work must be taken up and loaded by the loader if the operator so requires. Bottom coal must be left down if the operator so orders.

Bottom coal in wide rooms which does not exceed 4 in. in thickness and is not "sticky" shall be lifted by the miner without extra compensation.

Whether the coal is or is not "sticky" shall be determined by the mine boss and loader in the following manner: The bottom is to be sheared along the rib to the face, and is to be open on the end. Two wedges are to be driven through the bottom coal, these wedges being 18 and 36 in. from the shearing and to reach 18 in. from the front of the bottom coal. If the coal still clings and adheres to the floor, it shall be termed "sticky bottom," and the loader shall not be required to lift it without compensation based on the maximum inside day-wage scale.

This, however, shall not prevent the mine boss and loader from making a mutual agreement to lift the bottom, or in case of their failure, to agree to have it lifted by anyone by paying the maximum inside day-wage scale. Nor shall it prevent the mine committee and superintendent from making investigations in case of disagreement under the above rule.

Rule 15. No extra compensation shall be paid because a working-place is driven on the butts or faces or at any angle thereto.

Rule 16. The operators pledge themselves to provide two rooms for each two machine loaders at the earliest possible moment, but in the event of territory becoming scarce through a squeeze or striking a horseback or any unavoidable obstacle, this rule shall not be construed so as to diminish the output of the mine.

(a) With 18-ft. rooms and a track along the rib, the above rule shall be modified by the operators and miners affected, if under its application the loaders will not be as steadily employed as they are at present under this rule. It shall be provided, however, that no two men be forced to work in one room.

Rule 17. All men driving working-places 15 ft. wide or over shall receive the tonnage price only, except in such rooms as hereinafter provided.

Rule 18. All rooms shall be 18 ft. wide or over. The operator shall designate the width of the room. When it is ordered that the place be driven less than 18 ft. wide, entry price shall be paid.

Rule 19. When required by the operator, rooms may be turned by machine, thus eliminating pickwork. In case the operator requires that pick cuts be taken out, the prices provided for herein shall be paid.

Rule 20. When the day men go into the mine in the morning, they shall be entitled to two hours' pay whether or not the mine works the full two hours. But after the first two hours the day men shall be paid for every hour thereafter by the hour for each hour's work or fractional part thereof. If for any reason the regular routine work cannot be furnished to the inside labor for a portion of the first two hours, the operators may furnish other than the regular labor for the unexpired time.

Rule 21. Any man called from the inside of the mine to perform outside day labor temporarily shall receive inside day wages. Any man called from the face of the coal or who receives $2.84 per day shall be paid that same sum.

Any miner who is without coal and who accepts employment on the outside for that day or any fractional part thereof shall receive the outside day wages for the class of work he performs.

Rule 22. A uniform rate of 1 per cent. on the dollar shall be charged in pick mines where the company hires the blacksmith, and it is further agreed that no cutters and loaders in machine mines shall be charged for blacksmithing.

MISCELLANEOUS RULES

Rule 23. There shall be no free turns allowed for either rooms or entries. The entries shall be driven as fast as the operators desire or conditions permit; but in no case shall entry miners be allowed more cars for coal than room miners, and at least once each pay the turn shall be made uniform throughout the mine for the time previously worked. If, however, the regular turn will not allow cars enough to drive the entries as fast as desired, the operators shall increase the number of miners in each entry, so that by giving to each the regular turn the entries shall be driven as fast as two miners could drive them with an unlimited supply of cars.

If, however, the room men decline to take their place in the entries when requested by the operator, then the entrymen shall have free turns until the entries are driven their required length.

Rule 24. A checkweighman may be placed on the tipple at the expense of the miners. He must not be a member of the

pit committee and must at the time of his selection be an employee at the mine where he is to serve. His duties shall be those prescribed by the laws of the State of Ohio. All weigh scales may be tested by the miners at any reasonable time.

Rule 25. Any rule, either local or general, governing the scale or conditions of employment in the Pittsburgh vein of subdistrict No. 5 shall be mutually agreed to by the operators and miners interested, and said rules, before being enforced, shall receive the indorsement of the officials both of the operators and of District No. 6, U. M. W. of A.

Rule 26. The miners may cease working only on the day on which a fatal accident to an employee occurs in the mine. Under no circumstances shall the mine be made idle for any funeral.

In consideration of the mine continuing to work on the day a funeral is held, the operators agree to contribute to the bereaved family, on the death of any of their employees, one-third of the amount paid by the miners, said amount not to exceed $25. This rule does not prevent friends from attending a funeral. The operators shall not be required to pay the amount herein specified in case the deceased was covered by the Workmen's Compensation Act.

Rule 27. In case of local or general suspension of mining, either at the expiration of this contract or otherwise, the engineers, firemen, pumpers and other men necessary to keep the mines in shape shall not suspend work, but shall, when work is suspended, fully protect and keep in repair all the company's property under their care, and operate the fans and pumps, and lower and hoist such men or supplies as may be required to keep up steam at the company's coal plant; but it is understood and agreed that the operators will not ask them to hoist for sale on the market any coal produced by nonunion labor. The rates to be paid for such work to be those in effect at the time of suspension and also subject to any subsequent settlement.

Rule 28. The conditions, employment, duties, hours of labor and membership of the U. M. W. of A. of the engineers, firemen, electricians and machinists existing prior to Sept. 1, 1903, continue and remain in force during the life of this contract.

It is further agreed that if any member of the U. M. W. of A., even if on a mine committee or serving as a local officer, shall interfere with the engineers, firemen, electricians or machinists on duty he shall be subject to suspension or dismissal by the operator, it being understood that the engineers, firemen, electricians or machinists who are now members shall remain members of the U. M. W. of A. and those who are not members shall not be compelled to join.

Rule 29. Pay days shall be on the 10th and 25th of each month.

Rule 30. The check-off system is adopted as a part of the agreement in this district. This rule pertains to regular dues and assessments of the U. M. W. of A. In order to be honored the check-off must be furnished to the company not later than 5 p.m. on the 2d and 17th day of each month.

Rule 31. Where railroad cars are promised and are on the way between the yards and the mines at starting time in the morning, the men shall wait 30 min. and no more; provided, however, that where satisfactory local arrangements exist regulating the waiting for cars, the same shall remain in force.

Rule 32. The prices herein stipulated for cutting and loading a ton of coal carry with them compensation for taking care of the working-places. When the conditions of the working-places are such that it becomes necessary to reset posts, it shall be done by the cutter on one of the two following bases:

(1) The cutter shall reset two posts in rooms of any width without extra compensation and he shall receive 3c. per post for each additional post reset, or (2) the cutter shall reset three posts in a 24-ft. working-place or two posts in an 18-ft. working-place, without any extra compensation, and for each additional post reset in excess thereof he shall receive 5c. per post. Posts in either case shall be counted but once.

The operator shall have the right to elect which basis of settlement is to govern work of this character, if any, at each individual mine, but having made his decision he is not permitted to change the basis during the life of this contract. If posts need resetting the machine runner shall, if possible, notify the mine boss in advance that such work is necessary.

Rule 33. It is understood and agreed that should any dispute arise in regard to the interpretation of the rules and provisions of this scale the interpretation shall be left entirely to the committee of operators and miners who formulated and signed this agreement.

Rule 34. All draw-slate over 12 in. thick shall be considered "thick slate" and shall be paid for on the following basis per yard, running with the working-places:

The rate for each inch of draw-slate over 12-in. shall be $0.063 for a room 24 ft. wide, $0.053 for a room 18 ft. wide, $0.048 for a room 15 ft. wide, $0.042 for an entry 12 ft. wide and $0.0315 for an entry 8 ft. wide.

PICK-MINING SCALE

Mining, run-of-mine coal, per ton	$0.676
Mining, bank measure, per foot, room 24 ft. wide, coal 5 ft. thick	3.22
Mining, bank measure, entries not to exceed 6 ft. wide, per yard	4.06
Mining, bank measure, entries not to exceed 7 ft. wide per yard	4.74
Mining, bank measure, entries not to exceed 8 ft. wide, per yard	5.41

For every 3 in. above or below the regular height of 5 ft. of coal on a bank-measure system, in both entries and rooms, a proportionate advance or decline in the mining rate shall be paid.

INSIDE DAY-WAGE SCALE

Tracklayers, bottom cagers, drivers, motormen, trip-riders, machine-haulers, water-haulers and timbermen, where the latter are employed, per day	$2.84
Pipemen for compressed-air plants, per day	2.78
Tracklayer's helpers, and all other inside day labor, per day	2.62
Trappers, per day	1.25

OUTSIDE DAY-WAGE SCALE

The following shall be the scale for outside day labor, as enumerated below:

Checkers, per day	$2.51
Dumpers, per day	2.34
Trimmers, per day	2.19
First blacksmith, per day	3.12
Second blacksmith, per day	2.81
Blacksmith's helpers, per day	2.62
Mine carpenters, per day	2.62
Couplers and greasers, per day (boys)	1.37

All present outside day labor not satisfied with the wages to be paid according to this scale shall be given an average place in the mine.

The above schedule of day wages applies only to men employed in the performance of their labor and does not apply to boys, unless they can do and are employed to do a man's work.

MACHINE-MINING SCALE

Chain Machines

Cutting in rooms, per ton	$0.08
Cutting in entries, breakthroughs between entries, breakthroughs between rooms, and turning rooms 8 ft. wide, per ton	.08
And extra per yard	.20
Cutting in entries, breakthroughs between entries, breakthroughs between rooms and turning rooms, 12 ft. wide, per ton	.08
And extra per yard	.15
Loading with hand drilling in rooms, per ton	.39
Loading with hand drilling in entries, breakthroughs between entries, breakthroughs between rooms and turning rooms, 8 ft. wide, per ton	.39
And extra per yard	.50
Loading with hand drilling in entries, breakthroughs between entries, breakthroughs between rooms and turning rooms, 12 ft. wide, per ton	.39
And extra per yard	.40

Pick Cutting

Pick cutting, 8 ft. wide, per ton	$0.39
And extra per yard	2.90
Pick cutting, 12 ft. wide, per ton	.39
And extra per yard	3.62

Drilling—After both chain and punching machines, where drilling is done by machine operated by other than the loader, 1.85c. per ton mine-run coal will be paid to the driller and 2.27c. deducted from the price for loading as above.

Classifying Technical Literature

Delegates from about twenty national technical and scientific societies met in the United Engineering Societies Building, 29 West 39th St., New York City, on May 21, 1915, to perfect a permanent organization, the purpose being to prepare a classification of the literature of applied science which might be generally accepted and adopted by these and other organizations.

The name adopted for this organization is Joint Committee on Classification of Technical Literature, and the temporary address of the secretary, W. P. Cutter, is 29 West 39th St., New York City. Fred R. Low, the editor of *Power*, is chairman of the committee.

Tipple Equipment for a Modest Tonnage

By E. C. De Wolfe*

SYNOPSIS—The coal is lowered down the mountain side by an inclined plane to the tipple, where careful preparation is secured. The entire equipment was designed to handle a normal output of 200 tons per hour.

In the comparatively new fields of Harlan County, Kentucky, the Golden Ash Coal Co. has recently opened a mine to win a high-grade fuel from a high-level seam in the mountains. The plant is modest in character, as befitting the limited extent of the property. The tipple is placed at railroad elevation, while an incline leads up the mountainside to the level of the mine proper.

The tipple, Fig. 2, is a frame structure, equipped with a complete outfit of machinery, made by the Webster Manufacturing Co., Tiffin, Ohio, from the mine-car weigh scales to the railroad-car loading chutes. The equipment is designed throughout to handle an output of 200 tons per hour. While small and simple, it is complete and of the highest quality.

Mine cars in trips of four are let down the incline behind "dolly" cars. Uncoupled on the level approach to the tipple the cars are run singly over the scales and thence to the crossover dump, where the coal is discharged into the hopper the bottom of which is seen in Fig. 3.

A reciprocating feeder beneath the hopper delivers the coal evenly to the pair of balanced, inclined shaker screens, Fig. 4. On the day of the photographer's visit the output was being loaded as mine run, so the screens were veiled, as shown by Fig. 5, and cars were passed beneath the tipple on one track only, Fig. 2.

The two shakers are operated in balance by oppositely working eccentrics, the screens being mounted on wheels supported for a short horizontal movement.

For each grade of coal prepared there is a steel loading chute set permanently at proper inclination and adjustable to the desired loading position by movement endwise. This arrangement maintains a constant pitch to the chute and is therefore preferable to the common method of hing-

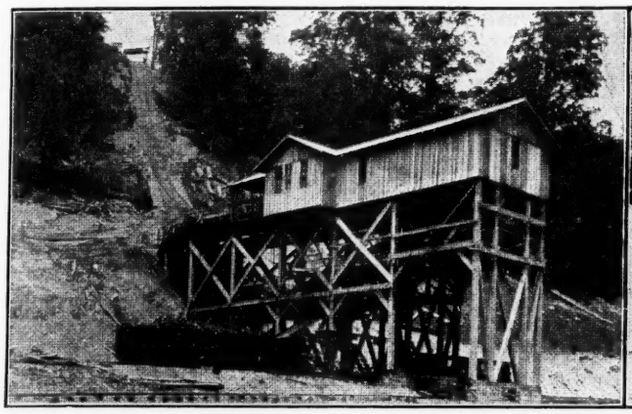


Fig. 1. Tipple and Gravity Plane of the Golden Ash Coal Co.

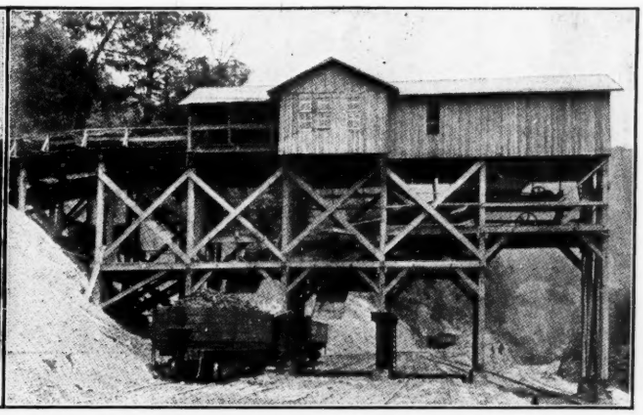


Fig. 2. The Tipple Spanning Four Loading Tracks

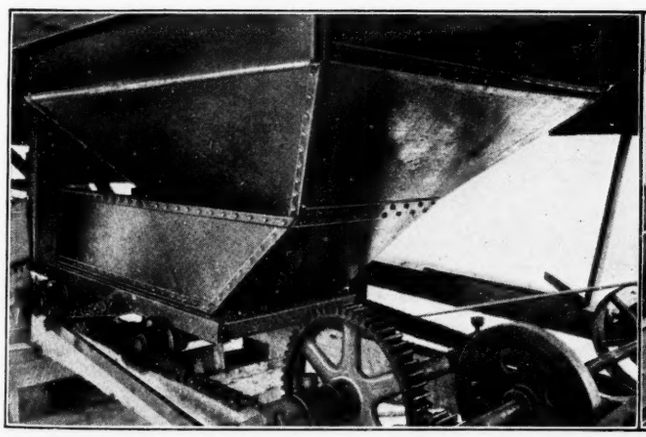


Fig. 3. Receiving Hopper and Reciprocating Feeder to Screens

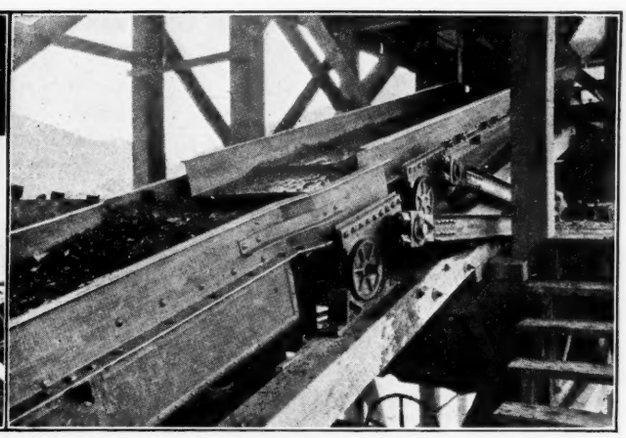


Fig. 4. Shaker Screens and Operating Connections

*Secretary-treasurer, Russell-De Wolfe Co., 537 South Dearborn St., Chicago, Ill.

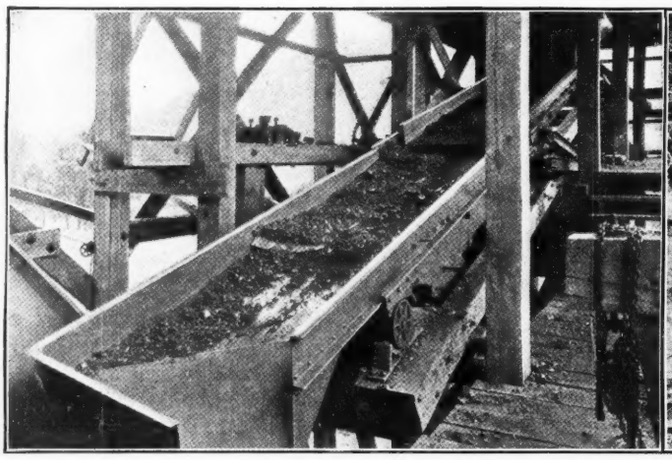


FIG. 5. SCREENS VEILED FOR LOADING RUN-OF-MINE DIRECT TO RAILROAD CARS

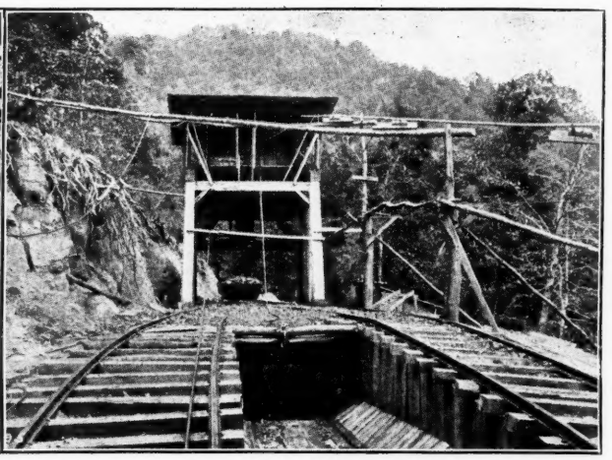


FIG. 6. LOAD TRACKS OVER THE KNUCKLE, AND EMPTY RETURN BETWEEN

ing at the upper end and making loading adjustments by raising and lowering the delivery end.

The endwise adjustment is effected simply by arranging the chutes to slide in suitable guides, under control of a wire rope carried to a hand winch placed for convenient operation by the man on the loading runway beneath the tipple. At the left in Fig. 5 may be seen a portion of the lump or mine-run chute, and beyond it the wire rope passing over a sheave giving a fair lead to the winch below.

OPERATION OF THE GRAVITY PLANE

At the head of the incline in a heavily timbered frame, Figs. 6, 7 and 8, is the rope drum by which the operation

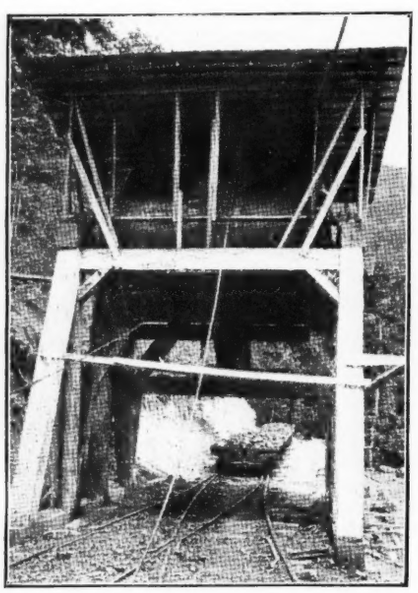


FIG. 7. DRUM AND SUPPORTING STRUCTURE

of the gravity plane is controlled. On the double tracks down the mountain the loaded cars going down haul the empties up. The drum has therefore only controlling work to do, and its principal feature is a positive and safe brake of ample power for all emergencies.

The drum at Golden Ash has two heavy band brakes, one at each end. Either is ample for stopping and holding the drum at any speed it might attain, with any load which might be going down and with no load going up on the other rope. The drum is 8 ft. in diameter and 9 ft. long. It is of wood, on cast-iron spiders, fitted to a large shaft, supported in heavy rigid pillow blocks.

As shown in Fig. 7, the loaded cars may be sent through beneath the drum on either of two tracks leading to the "knuckle" at the head of the incline. Sets of four cars coupled together are alternately sent over these two tracks for lowering to the tipple. On whichever track the empties come up, they are switched automatically to a central track, on which they pass through the tunnel and run out to the right onto a side track, where they are made up into trips for return to the mine.

Sloping sides beside the rails in the tunnel and its approach force the cars back onto the track in case they

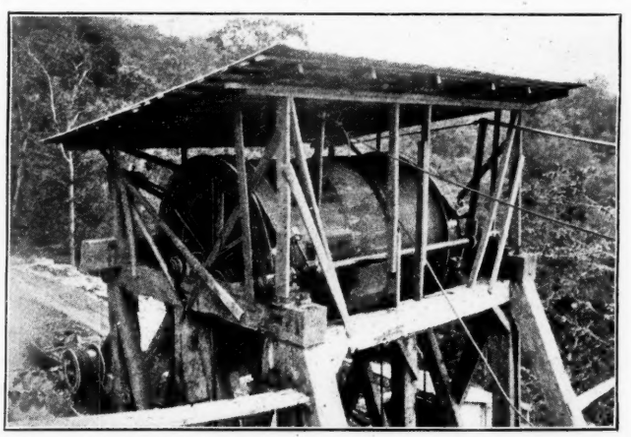


FIG. 8. THE DRUM AND ITS POWERFUL DOUBLE BRAKES

should for any cause be derailed in coming up the incline. This is a wise and simple provision for safety and surety of operation where light empties are handled under conditions tending naturally to danger of derailment.

Tennessee Wage Law Invalid—The law enacted by the Tennessee Legislature in 1913 making it an offense for a corporation which operates a commissary to refuse to make semimonthly payment of wages to its employees in cash, after deducting amounts due for advancements, is invalid as indirectly authorizing imprisonment for debt, in violation of the constitution of that state. (Tennessee Supreme Court, State vs. Prudential Coal Co., 170 Southwestern Reporter 56.)

Utilizing Anthracite Dust

By J. C. Law*

SYNOPSIS—About one million tons of anthracite coal too fine to be marketable is produced yearly. Thus far attempts at briquetting this material have not been pronounced commercial successes. Coal-tar pitch has been heretofore used as a binder, but experiments would indicate that sulphite pitch with a few other ingredients added is a much better material for this purpose.

As a preface to this contribution bearing on the conservation of anthracite coal, I am reminded of a paragraph pertinent to the subject appearing in an editorial in Coal Age of Apr. 17, reading as follows:

"The American coal operator of today is a thorough economist. . . . In our present stage of development along economic lines no one would venture the assertion that the utmost attainable has been reached."

The writer is in full accord with this view, but will confine discussion to the anthracite branch of the industry. It would seem that wherein anthracite coal mining and conservation in extraction are concerned the operators have, under modern methods, attained the utmost. Yet in this branch of the industry there is a final stage in the employment of a present unmerchantable anthracite product that has not been reached, and so far has practically failed as an economic proposition, but which can be profitably utilized.

The matter referred to is the commercially successful utilization of the present huge cumulative tonnage of coal dust or anthracite fines below No. 3 buckwheat. Down to that size the coal is both salable and usable, alone in some instances, but more generally in combination with No. 1 or No. 2 buckwheat. The great tonnage below these sizes, which is now screened off and conserved, is practically pure coal chippings, but its profitable disposal is a grave problem at the majority of operations.

This finer product, aside from that already in banks unmixed with culm and other refuse, amounts to fully 1 per cent. of the total production of about 90,000,000 tons annually. On the face of it this appears to be an insignificant amount, yet in cold figures it aggregates 900,000 tons, of a nominal market value of 30c. to 35c. per ton f.o.b. It is possible that this tonnage is underestimated. Lackawanna County alone is officially reported to have produced over 320,000 tons of what is termed No. 4 buckwheat and under in the last 6 months of 1914. Actual tonnages of No. 4 buckwheat and below are difficult to obtain, for the reason that most collieries make no differential in reporting their tonnages below No. 3 buckwheat. It would be safe to assume, however, that 1,000,000 tons of these practically unsalable fines is produced annually.

A Solution Formulated

What, then, is the solution of this problem? Is there no way this product can be profitably capitalized? Eighteen months' special investigation of the subject convinces the writer that it *can* be, and the following is presented as a logical solution:

Primarily, let it be said that for many years private capital in the main has endeavored to briquette this material for domestic use. The briquetting plants have been operated within and without the coal field, using mainly coal-tar pitch as a binder. It is now an established fact that anthracite and coal-tar binder will not produce a satisfactory and smokeless briquette for domestic use, and this only should be the aim of any anthracite briquetting company—not alone to make a smokeless briquette, but one that is odorless and waterproof. The latter feature is not absolutely essential, but it is preferable, and adds but a few cents per ton additional to the cost of the process.

The demand for briquettes of anthracite is like that for the majority tonnage of fresh-mined hard coal and is confined to a comparatively limited market. That market is Pennsylvania, New York, New Jersey, Delaware and the New England States, which consume 82 per cent. of the entire anthracite production. In these states the consumer is accustomed to the use of anthracite coal for domestic purposes in stove, furnace and fireplace, and nothing short of a smokeless, odorless fuel will be tolerated if the cost of domestic sizes of hard coal to the consumer is not materially advanced in future years.

The heating value of coal-tar briquettes is not disputed, and, moreover, I am frank to say that I know of no briquetting plant using coal-tar binder with anthracite fines that has failed, provided the fuel could be burned, as it now is being burned quite satisfactorily on locomotives for instance. My contention, however, lies in the opinion, shared also by certain prominent coal operators and briquette machinery makers, that anthracite briquettes are essentially a domestic, not a power fuel, and that if the present briquetting plants had employed a binder such as will be referred to they would long ago have been enabled to make a smokeless, odorless and waterproof briquette in every way comparable, except in appearance, to fresh-mined chestnut and stove coal. It may also be asserted that by employing such a binder the finished product would have found a ready market at a much higher price than could possibly be expected for a coal-tar briquette—this too at only a slightly increased expense for manufacture.

The basic binder referred to is sulphite pitch—a by-product of all sulphite paper-pulp mills. The pitch as recovered contains from 25 to 35 per cent. fixed carbon, but this is reduced to 18 to 22 per cent. in the process of briquette manufacture. A certain heat value is thus added to the fuel. This binder does not soften under heat and can be subjected to a high temperature.

To make smokeless briquettes they must be baked to a high temperature. No binder has heretofore been produced that would stand the baking process to as high a temperature as sulphite pitch and gain the desired result within a reasonable cost. Wheat shorts, molasses, starch and other grain and vegetable binders fail to

*Sales engineer, Cross Engineering Co., Carbondale, Penn.

withstand the temperature required to make a uniform and fully smokeless briquette, as beyond a certain temperature, they tend to carbonize like overbaked bread in the oven.

To further make such a briquette odorless and waterproof three common ingredients are added to the basic binder, completing the formula. For a 2000-lb. ton of briquettes it requires approximately 6 per cent. total binder, or 120 lb., which is reduced in the baking to about 75 lb. The total cost of binder per ton varies from 70c. to 80c. according to the location of the briquetting plant. This cost is low in comparison to the results obtained and the quality of the finished product.

Samples of these briquettes made in an experimental press and subjected to a burning test in a common range, as against fresh-mined chestnut coal, gave the results shown herewith. The briquettes weighed about 1¾ ounces each, a size between chestnut and stove coal, the same weights of fuel being used in each test:

FIRST TRIAL

Drafts On Full

Coal test; ignition period, 12 min.:	
Total time until fire died out	3 hr. 50 min
Total unburned coal	2¾ lb.
Total ashes and waste	4½ lb.
Briquette test; ignition period, 14 min.:	
Total time until fire burned out	3 hr. 35 min.
Total unburned briquettes	3 lb. (scant)
Total ashes, clear, no clinker	3 lb.

SECOND TRIAL

Drafts On and Off at Regular Intervals

Coal test; 15 lb. used; ignition period, 12 min.:	
Coal burned until out	6 hr. 20 min.
Unburned coal left	2½ lb.
Ashes and clinker	4½ lb.
Briquette test; 15 lb. used; ignition period, 14 min.:	
Briquettes burned until out	7 hr. 10 min.
Unburned briquettes left	2½ lb.
Ashes, clear, no clinker	5½ lb. (scant)

Remarks—The briquettes were entirely smokeless except for a vapor (due to waterproofing ingredient) for about 3 min., noted when fresh fuel was added after perfect ignition had been secured. Briquettes were odorless, no fumes being given off by the stove. Briquettes held their shape in fire until consumed or burned out. The heat developed was, if anything, greater than that from the coal. A test as to the thoroughness of the waterproofing of these briquettes was made by soaking in water for 12 days, the water being then evaporated and the briquettes thrown in the fire, where they burned readily until entirely consumed.

Preparation of Coal for Market

By G. M. Lantz

SYNOPSIS—To secure clean coal for shipment there must be coöperation between the miner at the face and the slate pickers at the tipple. An understanding of the needs of preparation may be fostered by the posting at the mine's entrance of correspondence relative to the condition of coal delivered to the customer.

Coal-preparation might be divided, roughly, under four heads: Extracting, handling, sizing and cleaning.

Most mining men are familiar with the efforts made in mining coal to secure a maximum of marketable product with the equipment on the market for handling the coal to eliminate breakage. They are also familiar with the various sizes produced.

In the Hocking Valley district of Ohio, the mine-run system has served to produce a larger variety of sizes, since most of the smaller companies installed 2-in., 3-in. or 4-in. screens and produce egg, or a grade of large nut. Some of the larger companies had already been loading these grades, under the screened-coal system. In spite of efforts made in some quarters to return to the 1¼-in. lump basis, it is probable that grades of lump from ¾-in. to 6-in. will continue to be produced in Ohio.

A Plan to Secure Better Results

It is not my object to comment on the three first heads under which I have divided coal preparation, but with the last; namely, cleaning coal, or the removal of impurities. This is usually effected, sometimes only partially, by docking and by supervision of loading. I wish to suggest a plan that I believe would be of value as supplementing the two methods in general use. I refer to posting letters from customers at the bank-mouth, for the information of miners.

Obviously it is impossible for the trimmers to remove *all* the impurities from the coal. Part of this work, at least, must be done by the miners. It is also impossible for the mine-foreman to see all the coal loaded. His duties do not permit a thorough supervision of the loading.

Many miners are conscientious and endeavor to load clean coal at all times. Others there are who are inclined to "slip one over" occasionally, in the matter of broken-up bone-coal, fine slate, etc., in the bed of the car, with nice black, shiny lumps for "cribbers." Such a one justifies himself on the ground that the operator would sell the coal if he could, and would be inclined to "slip one over" on the purchaser if it were possible. For there are operators who are conscientious and others who are willing to sell impurities with their coal.

However, the trade demands clean coal, so that the operator, whether he wishes it or not, is compelled to meet the demands of the trade and send clean coal to the market.

Operator's Position Must Be Appreciated by the Miner

In order to produce clean coal, I believe it is necessary for the miner to appreciate the position of the operator—he should realize that production of clean coal is as necessary to him as to his employer. Without orders for coal the miner cannot make wages nor the operator profits.

The following letter, received by an operator from a customer, would be as valuable for the guidance of the miner as the operator:

"We have received several complaints during the last few weeks from our customers on account of excess bone in the coal purchased from you. On investigation, we find the complaints justified. Will you kindly ask your men at the mines who have charge of preparation to be more careful in the removal of bone?"

This letter posted at the bank-mouth, together with a few orders from the customer from whom it was received, would be an impressive object-lesson for the

*New Straitsville, Ohio.

miners. Orders from this customer often run from 10 to 25 cars weekly.

Or the following letter, posted beside the orders from the sender, would show the miners the necessity for cleaning the coal more effectually than a personal warning from the foreman:

A Warning Letter

"We have noticed in the last few cars of coal shipped from your mine a larger amount of slate than is justified. As you know, we have been featuring your coal, but unless the matter to which we refer is remedied, we shall be compelled in the interest of our customers to buy elsewhere."

And a letter like the following would show the miners the result of thoroughly cleaning the coal:

"Please ship at once, two cars of 4-in. lump coal. The last car was a dandy."

This signifies more than a means of securing clean coal. It means a closer coöperation between the miner at the face and the operator in the particular matter of cleaning coal, and opens the way to a further coöperation in other matters. It is a method of showing that the interests of miner and operator do not conflict. It is a means of taking the miner into the confidence of the operator. Frankness, after all, is a safe policy to follow. It would promote the kind of loyalty Michael Bernard has in mind when he writes:

Although with such importance fraught
And everywhere so widely sought,
It's something that cannot be bought
By gold or hope of gain;
Instead, it wields its power where
Employers' dealings all are square,
Where every rule is just and fair
And every act is plain.

Sizing and Cleaning Anthracite

By F. H. Blatch*

The preparation of coal in the anthracite field increases in difficulty each year. This is due principally to the mining of lower grades, or seams of coal containing bony and slaty material. The big veins of good coal have been the source of output of the mines, and the percentage of these veins grows less each year, while the beds containing more refuse matter are now forming the bulk of the tonnage.

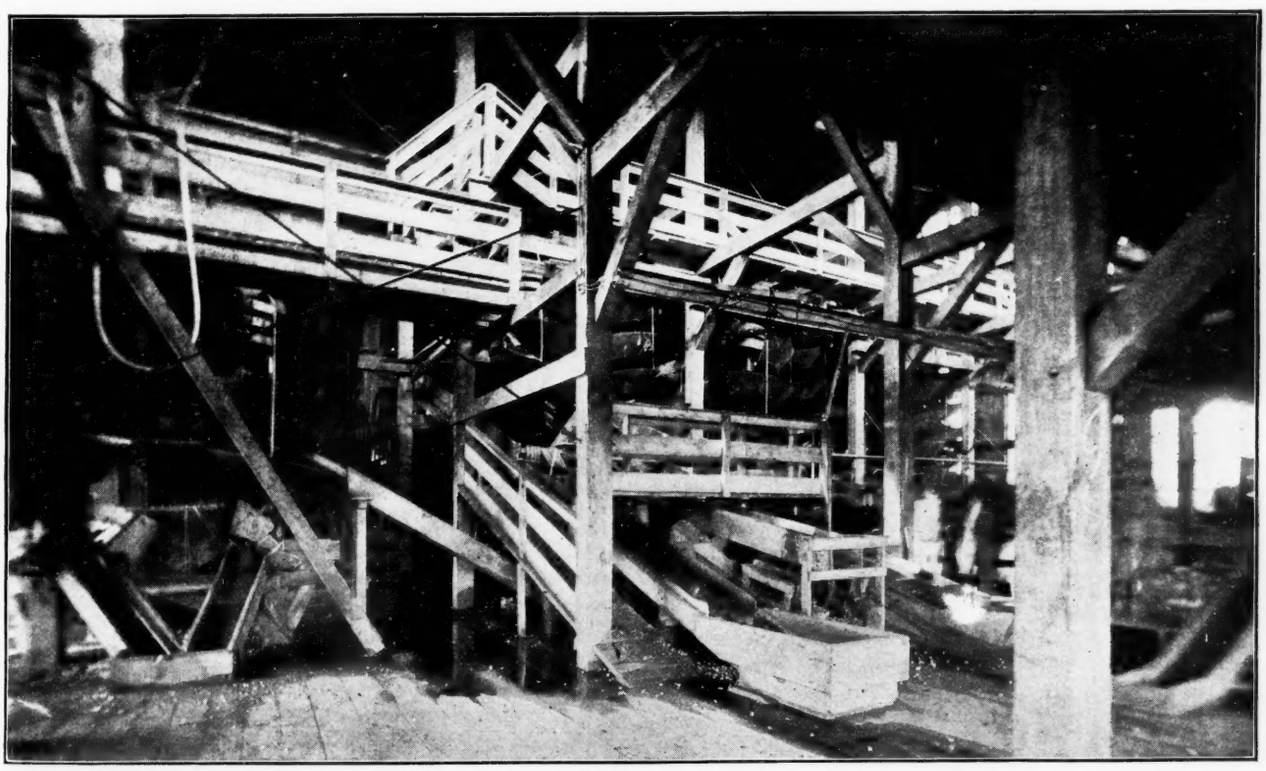
Naturally these conditions have caused great improvements in the preparation of coal. Modern preparation for anthracite coal is based on good sizing and cleaning which can adapt itself readily to the changes and restrictions of market demands. One of the methods of modern anthracite preparation is as follows:

The run-of-mine coal, after it is delivered into the breaker, is divided into three classes of material—large lump coal, bony or intermediate material and mud-screen material. The large coal runs over oscillating bars and on traveling platforms, where bone and rock are removed, while pure lump coal goes through crusher rolls and over separate sizing screens to mix with the mechanically cleaned coal on the way to storage bins.

The large bony material, hand picked from traveling platforms, goes through a separate set of rolls which crush it to commercial sizes, after which it is sized over shaking screens and delivered to spiral separators, which separate the refuse from the coal by the dry method.

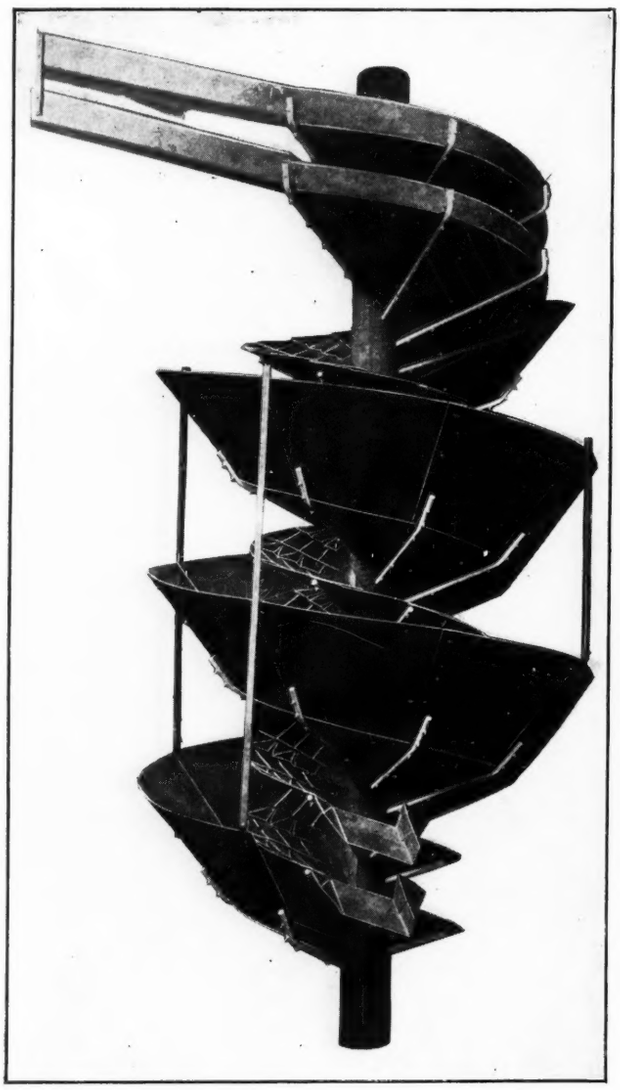
The mud-screen material (from 6 in. down to dirt) goes through the oscillating bars to shaker screens and is thoroughly washed and sized before being prepared over the spiral separators used for wet separation.

*Hazleton, Penn.



Showing Spiral Separators in an Anthracite Breaker

These spiral separators are used to give three separations—good coal for the market, cleaner refuse for the rock bank, and a delivery of bony material into a separate course, to be ground to smaller sizes, where it will not affect the prepared coal. With the three-part separation, the appearance of the prepared sizes for the market can be made to satisfy a very exacting inspector without losing the undesirable appearing coal and bony material, which otherwise would be wasted with the refuse if not ground down to steam sizes where the appearance does not affect the burning qualities.



SPIRAL SEPARATOR USED IN THE ANTHRACITE FIELD

Production of Coal Briquettes Increased

A substantial increase in the quantity of coal briquettes manufactured and sold in 1914 is announced by the U. S. Geological Survey. A tendency to operate in large units is illustrated in the statistics of this collateral branch of coal mining, notwithstanding the fact that it may well be considered in the early stages of development, the smaller and experimental plants going out of existence and the new enterprises being of greater capacity.

The production of briquetted fuel in 1914 amounted to 244,635 short tons, valued at $1,123,178, an increase compared with 1913 of 62,776 short tons in quantity and $115,851 in value. This shows the greatest activity in coal briquetting in the history of the industry.

For convenience the Survey has grouped the output by Eastern, Central, and Pacific Coast states. In each of these groups the production in 1914 was greater than in the preceding year. In the Eastern states it increased from 62,244 short tons, valued at $240,643, to 101,782 tons, valued at $273,046; in the Central states from 73,287 tons, valued at $360,408, to 88,325 tons, valued at $424,569, and in the Pacific Coast states from 46,328 short tons, valued at $406,276, to 54,528 tons, valued at $425,563.

Of the 15 plants in operation during 1914, five used anthracite culm as a raw material; two, semi-anthracite; one, bituminous slack; two, a mixture of anthracite culm and bituminous slack; two, petroleum residuum; two, semibituminous slack, and one, a mixture of anthracite culm, bituminous slack, coke, and lignite. Eight plants used coal-tar pitch for a binder, four used secret binders, and one used petrolastic cement. No binder is required in the briquetting of carbon residues from oil-gas works.

New York School Contracts

BY PATRICK JONES*

A preliminary analysis of the bids on the coal supply for the New York City Board of Education shows that we will effect a saving of at least $25,000 as compared with the previous contract. We have been the pioneers in the question of economy in the use of fuel, and the following figures will show what has been accomplished in the interests of the taxpayers.

COAL PURCHASES OF NEW YORK CITY SCHOOLS SINCE 1903

Year	Budget	Compared with 1904 — Decrease	Compared with 1904 — Increase
1904	$584,544.70		
1905	453,387.00	$131,157.70	
1906	451,864.00	132,680.70	
1907	451,094.00	133,450.70	
1908	501,800.53	82,744.17	
1909	501,800.42	82,744.28	
1910	526,880.10	57,664.60	
1911	522,130.95	61,413.75	
1912	561,939.07	22,605.63	
1913	648,687.36		$64,142.66
1914	612,132.74		27,588.04
1915	606,712.15		22,167.45
Total		$704,461.53	$113,898.15

It will be noted that the total reduction in the budgets as compared with 1904 is $704,461.53 and that the total increase in the budgets as compared with 1904 is $113,898.15, making the reduction $590,563.38. The new schools that were not in existence in 1904, but became a liability against the fuel fund subsequently thereto, burned about $1,350,000 worth of coal up to May, 1915. And we met this enormous demand, not with any increase as compared with 1904, but with a total decrease of $590,563.38.

We are still progressing in other directions and hope to effect further economies. One thing is certain—that I will ask for less money for fuel for the schools for 1916 than the amount allowed for 1915; and I am aiming to make my budget for 1916 lower than the budget for 1904.

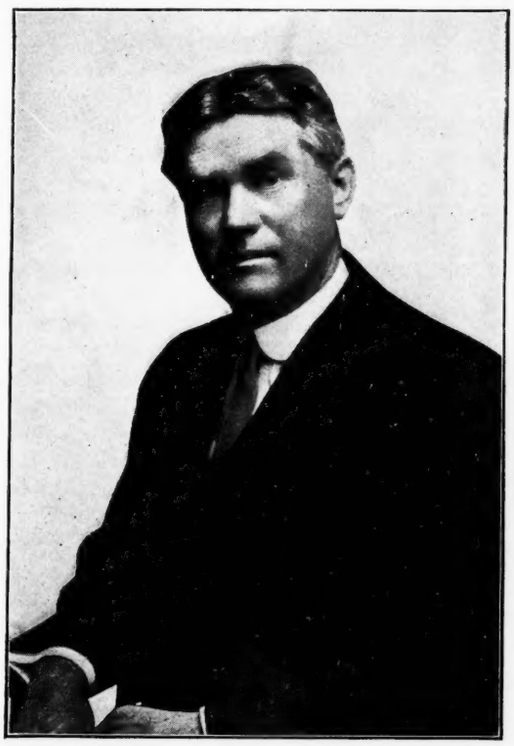
*Superintendent of School Supplies, Park Ave. and 59th St., New York City.

Who's Who in Coal Mining

James Scott Thompson

One of the most successful of the younger men that are now making their mark in the coal-mining business of the Far West is J. S. Thompson, general superintendent of the Utah Fuel Co. Few men are more popular or have a wider acquaintanceship in the coal fields of the Rocky Mountain region than Mr. Thompson.

He was born in Chicago in 1875, but received his early education in the public schools of Denver, Colo, later securing his mining degree in the Colorado School of Mines, where he graduated in 1899. In college Mr. Thompson took a prominent part in athletics, being recognized as one of the greatest foot-ball stars the School of Mines ever turned out. The qualities that made him so popular with his college mates have also served him well in his business associations. His most valuable personal asset is his ability to secure and retain the goodwill and confidence of those with whom he deals.



J. S. THOMPSON, OF UTAH FUEL CO.

Soon after leaving college Mr. Thompson entered the employ of the Colorado Fuel & Iron Co. as assistant engineer. In 1901 he was appointed division engineer for the same company and a year later was advanced to the position of superintendent of the Sopris mine. This position he held until 1907, when he left the Colorado Fuel & Iron Co. to become assistant superintendent for the Federal Lead Co., Flat River, Mo.

In 1908 Mr. Thompson accepted the position of general superintendent of the Stone Cañon Consolidated Coal Co., Stone Cañon, Calif. In 1909 he again entered the service of the Colorado Fuel & Iron Co. as division engineer, which position he held until 1910, when he became superintendent of the first division of the company, holding this post until 1913.

After introducing a short course in coal mining at the Colorado School of Mines for candidates to state examinations during April and May, 1914, Mr. Thompson assisted in the mine examinations conducted by the Utah Fuel Co., being appointed general superintendent of the company on Dec. 1, 1914, which position he now holds.

Mr. Thompson is a member of the American Mining Congress, the American Mine Safety Association and the Rocky Mountain Coal Mining Institute.

To Burn Coal Like Oil

Crude oil as a competitor of coal may have a solar plexus blow dealt it soon if the invention contemplated by an official of the Oregon-Washington Railroad & Navigation Co. does what it is expected to do. Many railroads in the country have installed oil burners in their locomotives, but notwithstanding that oil has its virtues, it also has its drawbacks. Railroads that have a supply of coal of their own do not of course relish the idea of buying oil, and as coal is as good for making steam as its competitor is remains to find a cheaper and cleaner means of handling it.

The new scheme is to powder the coal and burn it in locomotives on exactly the same principle as crude oil is burned. Under the prospective process there will be little waste and no smoke, ash or cinders. Should this novel method prove practicable it will mean a great saving in the inland districts, where it is difficult to secure crude oil. It is planned to force the powdered coal into the firebox under steam or air pressure. Thus the fuel will not touch the grates, but will burn precisely the same as gas.

COMING MEETINGS

Rocky Mountain Coal Mining Institute will hold its next meeting in Trinidad, Colo., June 8, 9 and 10. Secretary, F. W. Whiteside, Denver, Colo.

Mine Inspectors' Institute of the U. S. A. will hold its annual meeting June 8, 9, 10 and 11, 1915, at St. Louis, Mo. Secretary, J. W. Paul, Pittsburgh, Penn.

West Virginia Coal Mining Institute will hold its summer meeting at Wheeling, W. Va., June 15 and 16. Secretary, E. N. Zern, Morgantown, W. Va.

Pennsylvania Retail Coal Merchants' Association will hold its 11th annual convention at Wilmington, Del., June 15, 16 and 17, 1915, with headquarters at the Hotel Du Pont.

M. O. I. Coal Association annual meeting will be held June 22-25, 1915, at Cedar Point, Ohio. Secretary, B. F. Nigh, Cleveland, Ohio.

American Society of Mechanical Engineers will hold its summer meeting at Buffalo, N. Y., June 22-25, 1915. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

American Institute of Electrical Engineers will hold its annual convention June 29 to July 2, 1915, at Deer Park, Md. Headquarters will be at the Deer Park Hotel. Secretary, F. L. Hutchinson, New York.

American Mine Safety Association will hold the following meets: July 2-3, Big Stone Gap, Va.; July 23-24, Billings, Mont. Secretary, H. M. Wilson, 40th and Butler St., Pittsburgh, Penn.

The Order Kokoal will hold its annual pow-wow at Chicago, Ill., July 13 and 14, 1915.

The American Mining Congress will hold its 18th annual session at the Exposition Memorial Auditorium, San Francisco, Calif., Sept. 20-22, 1915. J. F. Callbreath, secretary, Majestic Bldg., Denver, Colo.

Sociological Department

Picker Boys' First-Aid Team Makes Good

When Joe Columbo, an Italian laborer, had his leg squeezed below the knee in the Truesdale breaker of the Delaware, Lackawanna & Western R.R. Co. coal mining department recently, the picker boys' first-aid team was right on the job.

The team has always done well in competitions, but this was a real injury with all its attendant excitement. When Joe Columbo arrived at the Nanticoke State Hospital, Dr. Acyer examined the dressing, and before he knew who made it stated that it was the best first-aid dressing he had ever seen.

Dr. Walter Lathrop, of the Hazleton Hospital, states that since the men have been trained in first aid and learned how to bandage properly and how to use the tourniquet, almost 90 per cent. of the amputations formerly necessary have been eliminated, except where the muscles are torn and the artery crushed or severed. The destruction of the softer fleshy parts of a limb is now a more serious matter than the fracture of a bone, as the Hazleton Hospital is now doing some marvelous bone grafting.

The value of the first-aid work in preserving limbs lies in the fact that the patients no longer arrive at the hospital exhausted from the loss of blood. Dr. Lathrop, however, adds a word of caution advising the loosening of the tourniquet once in awhile so as to partially restore the circulation of the blood if much time is necessary to get the patient to the hospital. Dr. Lathrop was the pioneer of first-aid training for the Lehigh Valley Coal Co. and still acts as a judge at their annual first-aid meets, so that he is familiar with both its theory and practice.

A Plea for the Miner's Wife

By Mrs. Edmund Ewing*

There is something of the aesthetic in every human being, no matter what his occupation or profession. A wee baby is attracted by bright colors; the attraction grows as the child develops, until all nature, clothed in various garbs, becomes a part of his personality and is always an inspiration to him. Have you never thought that the miner, living so much in the dark, must unconsciously miss the glories of the day, and have you never felt that his home, above all others, should be attractive?

When I knew my home was to be in a mining camp, I was elated; for there, one being relieved of obligations, social and otherwise, the "home beautiful" and hence the "camp beautiful" is the chief concern; in other words, one can make one's own environments. Much to my disappointment, I found that in this particular camp there were few homes that had even a vine on the porch. Naturally, the first impulse was to censure severely the wife who had not the pride and energy to try to make a home for her husband. Several inquiries were made as to the cause of the seeming negligence, with always the one answer, "Try and you'll find out."

This is what was found out by one person who tried. Fertilizer was to be had for the asking; so a goodly amount was distributed on both yard and garden, the yard was sodded, seeds were planted in both front and rear, and chickens were bought and comfortably housed. All this required work; for not only did we have a virgin soil to deal with, but the lot was on a hillside and the ground was hard, yielding only reluctantly to pick and spade.

All went well until the hot summer days ended all our prospects. Hose was purchased, but there was no water in the pipes. The ground had been mined underneath.

In the meantime, we had been making notes about those wives we had censured, and because of the observations we made I am making this plea for the betterment of their conditions. Besides the regular cooking, housecleaning, mending, sewing, caring for the children, there was the laundering, especially heavy in a miner's family, and the supplying of water for the men's baths for the housewife to take care of. In many cases this water had to be carried some distance. I remember that in one house there were nine men; one young girl and the other help about that house actually carried water a length of about two city blocks. It is needless to say that the bloom early fades and the wrinkles appear in such instances.

Welfare of the Miner's Wife Is Entitled to Consideration

I have often thought that it was just as necessary to protect the lives of the wives outside the mines as those of the men who have to work inside them, for the women are being killed surely though slowly.

It does seem that with just a few modern conveniences their work might have been lightened one-half, and they could have expended that extra energy, not only in making their surroundings more attractive, but in planting their own vegetable gardens with a small amount of help from the husband, thereby supplying their tables with fresh, nutritious vegetables at little cost. The chickens, too, could have supplied a goodly portion of the food with an even less expenditure.

With other conveniences the husband could have stayed in the house at night and read his evening paper comfortably, instead of sitting on the porch trying to read by a smoking lamp, as they have often been seen to do.

It does seem that the well-kept home, the fresh food, the lowered cost of living would have proved an incentive and the men would have given the company better service, and what a source of pleasure it would have been to the wife, who was naturally blamed because it took one hard day's earnings to furnish food for the next.

It was my good fortune to visit several times a nearby camp that not only had these modern conveniences, but

*Wylam, Ala.

one where gardening was encouraged, prizes were offered for the prettiest yards, clean-up days were observed, splendid teachers were employed in a beautiful, modernly equipped school, and there was a decided difference in conditions.

Some have said that this was due to the fact that the financial heads are located in this camp. Well suppose we take a look at some of the Tennessee Coal, Iron & R.R. Co.'s camps, the most beautiful in the South. Yet most of the financial heads of that corporation really know very little about them. Don't you suppose that the men in charge realize that the best dividend-paying company is the one that gets the most efficient work, and this kind of labor is to be obtained only when attractions are such that they not only draw the best class of miners, but get the greatest amount of work from the least suitable men?

Have you ever thought that it is the wife who profits most by the conveniences furnished and she is the greatest incentive to the man's work? My great desire is that all companies will realize the necessity of taking care of the miner's wife, and in turn the business of the corporation will be taken care of. The plan has been tried and has never failed.

THE LABOR SITUATION

SYNOPSIS—Even the Federal Industrial Relations Commission has ceased to trouble the waters. There remains nothing but the apprehension of what will happen in 1916. The union hoped to make the greatest struggle on record at that time, but for it the miners have only the leanest of purses.

The Federal Industrial Relations Commission has ended its sessions. Francis Patrick Walsh, much to his regret, is no longer a headliner in the news. Appointed by the President on June 26, 1913, he has been virtually repudiated by him, for when Walsh sought to obtain a letter written by Governor Ammons to the President, the secretary to the President refused to comply with his request.

His colleagues became more and more restive under his leadership as the weeks wore on; notably Harris Weinstock and Mrs. J. Borden Harriman. The first objected to his asking questions of John D. Rockefeller, Jr., which had not previously been submitted to that witness, others under examination having been informed as to the questions to be asked. All the members objected apparently to his rudeness in examination and signed, it is said, a "round robin" of protest. Whether such a paper was prepared is open to question as the public was not permitted to see it.

But we should not be too severe on Mr. Walsh as his wildness has undone him and helped the cause of those he would injure. On May 31 he made a statement summarizing what he pretended to believe he had proved against the John D. Rockefellers, father and son. One paper felicitously termed the notice, "Walsh Again in Eruption." It would not serve any useful purpose to publish his baseless diatribes.

W. L. Mackenzie King when being examined found much fault with F. P. Walsh's manner of questioning, declaring it injudicial. Harris Weinstock, Walsh's colleague in the commission, then tried to find what was the object in his line of questioning, and Walsh curtly replied that he, Walsh, was not on the stand and would not consent to be questioned.

Gallagher Amendment Is Signed

On May 27, Governor Willis signed the Gallagher amendment to the Green antiscreen bill, that being the last day on which action could be taken. The labor leaders brought much pressure to bear on the Governor, hoping that he would veto the bill, but he took the position that everyone should be permitted freedom of contract. It is said that at an earlier stage he was urgent in advocating the passage of the amendment. In his message he declares that he might have let the instrument pass by default, but he was opposed to evading his responsibilities. He ascribed much of the idleness in Ohio coal mines to the unfortunate Green antiscreen law.

The miners talk of endeavoring to have the bill recalled, and it must lay over for 90 days to give time for such action. A meeting of the executive committee has been called to discuss this referendum petition, but there seems no marked desire for it as practically all the mines are on a run-of-mine basis and will be till Mar. 31 of next year.

Despite the Long Contract and Wearisome Experience Strikes Continue

About 200 miners employed at the Majestic mine of the A. G. Blair Coal Co., at Blairmont, in Jefferson County, struck last week because it was claimed that all their wages were withheld to pay the deferred rent on houses occupied by them. The men say that during the conference over the wage scale at Cleveland the operators promised they would be lenient in the collection of such debits.

Another cause of dispute at Blairmont arose out of the ad interim arrangement which is to continue in force till equipment for weighing run-of-mine coal can be installed. The company declares that the miners were promised 24 per cent. additional pay for the unweighed slack. C. J. Albasin says that 32 per cent. was promised. As the agreement was verbal the correct figure will be hard to determine. The operators are given 60 days to remodel their tipples so that they can weigh the coal as it comes out of the mine.

The miners' organization is still demanding that the miner stockholders of the small West Wheeling mine, near Bellaire, join the union. The mining company is a sort of coöperative concern, and when the stockholders appeared to work in the mine about 17 union workers laid down their tools. It is claimed by the stockholders that they cannot join the union because they are members of the Pittsburgh Vein Operators Association and cannot be members of contending organizations.

At one time the stockholders were all members of the union, but left to avoid voting against their own interest. The labor leaders tried to force them into the union, but after paying their money the stockholders of the company found they would not be allowed to vote in the labor organization, and after making a protest the union returned their checks.

In 1906 after a general strike the company was not allowed to resume work, and for the first time employed nonunion men, continuing this practice for about 16 months. Before and since that time they have never employed nonunion men according to T. H. Johnson, the treasurer of the company.

Anthracite Labor Problems

The employees of the Henry shaft of the Lehigh Valley Coal Co., at Plains, presented their grievance before Judge Gray, the umpire for the Anthracite Conciliation Board, on Nov. 28. The men claimed that at one time they were paid 55c. per lineal foot for rock removed from the roof. Some time ago the company decided that the cars should be more heavily "topped," and consequently it was necessary to take down more roof in the "five-foot vein" so as to permit of the change. The yardage rate was then increased to $1.10 per lineal foot.

Later on the company opened another section of the same vein, and the men were paid the first or lower rate. It was shown that there was little or no difference in the earnings of the men in the two sections of the mine, and consequently the arbitrator was satisfied that the old rate was reasonable for the work to be done and gave his judgment accordingly.

The coming "spring drive" of the union on the operators in 1916 is naturally a matter of much speculation. It is to be hoped that the large program demanded will be considerably modified. The 8-hr. day for day hands will probably be a leading item, and it should be conceded. It has often been found that mining regions persisting in long working days manage to put out less coal than those which work a shorter time.: Illinois is an example of what can be done in a short working day.

An anthracite strike is almost sure to fail because of the lack of funds. Nothing can make it win except unreasonableness on the part of the operators. Seeing that the present heads of the companies are advocates of everything that is fair to their workingmen, they can rightly anticipate speedy success in arriving at a satisfactory settlement.

Injury to Miner Through Fall of Slate—A coal operator who directs a youthful and inexperienced miner to work under slate which is apt to fall is liable for consequent unreasonableness on the part of the operators. Seeing that the present heads of the companies are advocates of everything that is fair to their workingmen, they can rightly anticipate speedy success in arriving at a satisfactory settlement.

Injury to Miner Through Fall of Slate—A coal operator who directs a youthful and inexperienced miner to work under slate which is apt to fall is liable for consequent injury to the employee, who is entitled to assume that he will not be directed to work in an unsafe place. (Kentucky Court of Appeals, Garrard vs. Interstate Coal Co., 173 Southwestern Reporter 767.)

Editorials

The Mining Institute and Statecraft

The New York section of the American Institute of Mining Engineers approved the action of the three representatives appointed by the parent body in signing recommendations for amendments to the state constitution. It further authorized these three committeemen to coöperate with various other bodies of engineers and to act in the name of the New York section. It is a somewhat peculiar condition which is responsible for this action.

The members of the New York section of the Institute are little interested as engineers in the constitution of the state, and while more competent than the average man to decide on the necessities of statecraft, they have little vital interest in the problems of the state in which they live. In fact they would not have considered them seriously as a body, or perhaps as citizens, had they not been urged to take that interest by engineers of other types, such as members of the American Society of Civil Engineers, whose knowledge of the necessities of good government from an engineering point of view has been quickened by almost daily contact with the problems involved.

Despite the sterling character and qualifications of the men who will act on behalf of the section—W. L. Saunders, Benjamin B. Lawrence and J. Parke Channing—it is to be expected that the leaders in the deliberations will be men in societies having to do with civil engineering in its various branches. The coöperation, however, is suggestive of what the other sections of the institute may do where their vital interests are involved. It may well be that the American Institute of Mining Engineers as a body will take action of a statesmanlike character which will clarify the public mind on questions of national polity.

The Institute as a whole may well hesitate to discuss plans to regulate or dispossess the State Engineer and Surveyor, or to provide for the creation of a Department of Engineering and Public Works or of Public Utilities or of a Court of Public Claims, for these are matters of which it does not have the intimate knowledge and personal touch needed for decision.

But the Institute does have the information necessary to aid in preparing codes, constitutional and legislative, on matters such as the staking of claims, the setting of land values, the compensation of workingmen, the preservation of the lives, health and safety of miners, the regulation of competition, the assessment for taxes and the advancement of conservation.

And it is interesting to note that there is a disposition to treat these matters on the broadest basis, the members regarding themselves as citizens, not defending their personal interests, but those of the public. They act as engineers solely where their engineering knowledge gives them a peculiar ability to discuss certain problems.

It is to be hoped that this attitude will continue and the aim be, whole and entire, the interest of the republic and not an undignified desire to advance the interest of the engineering profession and the business concerns with which it is related as against that of any other body of citizens.

It is well known that there is a body—the American Mining Congress—the aim of which is solely to correct abuses of the police power as exercised over the mining business, and it is therefore argued that other societies should be solely technical and avoid discussions of "politics." But the purposes of the Congress are so clearly to advance propaganda of this sort that it cannot work so effectively on the public mind as an organization the purpose of which has primarily no relation with the issues involved, the members of which moreover are not likely to be directly enriched or impoverished by any political action however drastic.

There are instances where the engineers are pecuniarily interested in legislation. But in those particular cases the Mining Congress is not likely to help them. The engineers believe that engineers should be in charge of engineering work or at least adequately represented. We do not know of any body of business-men or lawyers who are agitating this principle for which the engineers are contending. Every indication is that they desire to occupy these positions of trust themselves and would relegate the engineers to the place of "hewers of wood and drawers of water."

In fact it has been increasingly evident that any man who desires to qualify to be placed in charge of works of national and state importance should study Blackstone rather than graphic statics and hydraulics. Though mining engineers have been sufferers—in the appointment of receivers, for instance—they have not been the leading victims of this unfair preference for lawyers. They do well, however, to add their protest to that of their professional brethren.

Too Many Societies

We all hear a great deal about there being too many institutes, and doubtless there are too many uncoördinated overlapping institutions. But most of the objection is really to societies generally, and the remark is as reasonable as one which we used to hear—"too much education."

We cannot have too much collaboration in human effort. We cannot have too much research. Too much publicity is difficult to conceive. The world will never go ahead unless we make the knowledge of one the property of all. "Too much endeavor," "too much fraternalism," "too much coöperation"—such statements are absurd on their face; and those who condemn societies perpetrate this folly, though possibly they do not know it.

The societies need vitalizing, it is true. Some of the papers presented at their sessions are clearly written to

order, like those essays we wrote in earlier days with sundry bitings of the heads of our pencils. Too many are accepted because they are contributed by men with a good position rather than an active brain or a telling message. Big men with nothing to say should give place to little men who have a compelling thought and time to formulate it for the benefit of the public.

Our societies are feeble because we do not take them seriously. It should be a recognized offense, and one not to be condoned by platitudinous compliments, to deliver an address and say nothing. Have not a hundred or so members who have traveled as many miles a right to reproach bitterly a speaker who wastes their time by saying nothing or insults their intelligence with an address that he has been too lazy to prepare with care? He should be compelled to make the hundred 100-mile trips himself as a penace for his effrontery and folly.

But these are days when we regard criminality with leniency, as a weakness, symptomatic of a disease, and not as an offense. So we must bridle our resentment and admit that it is impossible to visit on the offender all the burden of his grevious offending. We must be content to let him continue to owe a debt to his more conscientious fellow-citizens. Perhaps the author of a poor article believes he is doing the public a service, for what is a light to a bat is darkness to a man.

If our societies were all they should be, why should we begrudge them our money, for indeed it is only a few dollars we are asked to give to progress and to inspiration? For what else do we live except to move forward and to dream? Surely it is not a vegetating life without hope or progress that we seek.

Middle Western Crops and the Coal Markets

The outlook for wheat in Indiana and Illinois is encouraging, and the farmers are getting a good start with corn. The smaller crops are also looking better than usual, so that unless conditions later are adverse there should be an abundance of money in the Middle West this fall. This will undoubtedly have a tendency to stimulate industrial and business conditions generally and be of material assistance to the coal operators

A promising sign is further noticed in the tendency of shippers to withhold free coal from the Western markets; most operators have gaged their output exactly to meet the current demand, and this has been one of the main factors in causing high prices for screenings.

Pennsylvania's Anthracite Tax

The Pennsylvania Legislature has just concluded its sessions, and the coal companies as usual have watched its deliberations with much interest. Probably the most important piece of legislation enacted was a new anthracite tax law, which retains the old figure of 2½ per cent. on the market value at the mines, but is essentially different from the original act in that it makes a new division of the proceeds from the tax levy. Under the new law 50 per cent. will revert directly to the state for road development throughout the commonwealth and the remainder will go to the county which produced the coal. A bill was introduced to repeal the old act, but it was not heard from.

The passing of this new act shows that the legislators must feel secure as to the constitutionality of the new law. As will be recalled, the validity of the old act is now being contested, and it was expected that the Supreme Court would fix a time during the past week for hearing an appeal from the decision of the Dauphin County court, which sustained it. But the Supreme Court adjourned without fixing a date, and it now seems that a decision is far in the future.

Nullification

A sister state, Pennsylvania, scorning all the sentiment of the times for a just distribution of the burdens of government, has put a tax on anthracite with the express purpose of making New York State pay the major part of it. It is not laid for the benefit of those subject to the peculiar drawbacks and dangers of the industry, or why should the whole state receive a part of it?

It is purely a steal, and the offense is not mitigated by any desire of self-protection, which is the alleged cause of most tariff. It is for revenue only, the purpose being to make the people of New York State, rich and poor, pay tax in the State of Pennsylvania.

As an attempt to enable one state to pay its bills by taxing the consumption in another state, it is practically nullification. The courts may not so rule, and from a legal point of view they may be right. But there is a larger sense in which the anthracite tax is an offense against the Union.

Anthracite Production Slow

The production of anthracite in May reflected the industrial depression in many lines of business and was not equal to that of May a year ago. Shipments of anthracite in May, 1914, amounted to 6,281,553 tons, but it is probable that they fell below 6,000,000 tons last month.

According to the record of the Bureau of Anthracite Statistics shipments for the first four months of 1915 were 52,809 tons less than shipments for the first four months of 1914. When May is included the shipments for the five months of 1915 will probably be from 350,000 to 400,000 tons less than for the corresponding period in 1914.

Fishponds and Temperance

The Donohoe Coke Co. has a large reservoir, which it stocked with fish three years ago. The fishing rights in this pond were recently sold to the Greenwald Temperance Society for the exclusive use of members. No one can join the society without signing the pledge. But those who won't sign it say, What is fishing without a bottle?

Bathhouses in Kansas

The legislature in Kansas has passed House Bill 1033, providing that all mines must be equipped with bathhouses, which must contain several shower baths, also a locker for each miner. Kansas is progressive as usual.

The July 3 issue of COAL AGE will be devoted entirely to coke and its byproducts. All of our readers are invited to contribute articles dealing with some phase of coke manufacture. Manuscripts should be in our hands by June 24, or sooner.

Discussion By Readers

Mining Laws and Legislation

Letter No. 4—I was much interested and somewhat amused at the letter of I. C. Parfitt, COAL AGE, Apr. 10, p. 651, in which he seems to have had some difficulty in interpreting the meaning of that section of the bituminous law of Pennsylvania relating to the legal responsibility of the assistant mine foreman.

Apparently Mr. Parfitt thinks that because the assistant foreman works under the instructions of the mine foreman he is not personally responsible for the results of his action. When the present bituminous mine law was framed it was well known that the majority of the mines were so extensive that it was impossible for the mine foreman to visit all the men in their working-places every day. For this reason the clause was inserted in the law giving the foreman "the right to employ a sufficient number of competent persons to act as his assistants," stating further that they "shall act under his instructions in carrying out the provisions of this act."

It will be readily agreed that an assistant must always work under the instructions of his superior in office. In my opinion, however, this does not relieve the assistant of his personal responsibility in carrying out his orders. As I understand the law, both the mine foreman and his assistants are personally responsible—the mine foreman for the orders given to his assistants, and the assistants for the faithful performance of the same. Certainly the mine foreman cannot be held responsible for any carelessness or personal neglect on the part of one of his assistants, He can be held responsible only for the orders he issues and for the employment of those he believes to be competent men to act as his assistants.

I do not think for a moment that any mine foreman would attempt to hide behind his assistants or throw a responsibility that was his own on the other man's shoulders. When a mine foreman employs an assistant, he does so believing that he is capable of assuming the responsibility for the district placed in his charge. One might gather from Mr. Parfitt's remarks that he regarded the mine foreman as a mere figurehead who is authorized by law to employ a sufficient number of assistants to perform the work that was properly his own. Anyone familiar with the situation, however, knows that the mine foreman of a large mine has a hundred and one things to look after besides personally visiting the men in their working-places.

I believe the mine foreman should visit and carefully inspect certain portions of the mine every day himself, but his attention should be given mostly to those portions of the mine and to those matters requiring his personal oversight. There are no "figureheads" under ground and no place for them. The company pays the mine foreman a good price for knowing what has to be done and what men are best adapted to perform different classes of work. Each assistant and each workman employed in the mine is paid in proportion to his responsibility and the class of work he performs.

I might sum up by saying that in my opinion an assistant foreman is held legally responsible for anything that goes wrong in his district owing to his own neglect or carelessness in the performance of his duties of inspection. No judge or jury would convict a mine foreman for an accident arising from the carelessness or neglect of an assistant foreman, who must be responsible, as I said before, for the faithful performance of the duties laid upon him.

THOMAS HOGARTH.

Burgettstown, Penn.

Longwall in Pittsburgh Seam

Letter No. 9—I have followed with a great deal of interest the discussion of the question of whether the No. 8 or Pittsburgh seam can be worked successfully by the longwall method of mining. Inasmuch as I have had experience in working this seam and have studied its character and that of the overlying strata, I want to say that my conclusion is that the No. 8 seam cannot be worked profitably on the longwall advancing system.

For many years I was in charge of longwall work in our mines and visited a number of other mines that were being worked on the same plan. Some of the mines visited had a very tender roof, but were worked with profit to the operator. Where the roof was tender, the longwall face was always carried forward in steps (see Fig. 3, Letter No. 8, May 29, p. 940), so as to prevent the formation of a continuous break that would destroy the action of the roof, which is so necessary in the longwall system. In our mines each working place was kept 15 ft. in advance of that next following. The roof being tender, a break only extends as far as the steps, which arrest its progress. By this means, a general subsidence of the roof along the entire longwall face is prevented. In these mines the tender roof extended a good many yards above the seam itself, which is not the case in the No. 8 seam, where the tender roof extends only to the limestone—a distance that varies in different parts of the Ohio field, not exceeding 5 ft. in some places.

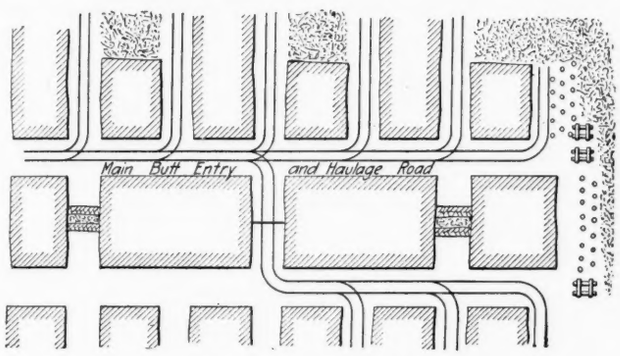
In considering the question of longwall, it is important to remember that the strata overlying the No. 8 seam is not at all suitable for packing material, because it crumbles quickly, especially if it is damp, which is the usual condition. For this reason the packwalls would not stand the pressure necessary to break the limestone, and as a result the roads leading to the face would be entirely lost and the working places would soon cave, when it would be found practically impossible to keep the work open.

Referring to the longwall retreating method proposed by John Oldroyd in Letter No. 7, May 15, p. 859, for working this seam, I would say that practically all the coal could be extracted by this system, but few operators would care to adopt the retreating method owing to the length of time required to extend the entries to the property line. The retreating method of longwall not only

possesses the disadvantage of late returns on the investment, but the operator in most cases is not in a position to buy all the coal he desires at the commencement of operations and must wait until his returns enable him to make a further investment, which is not possible in the longwall-retreating system. The working of future acquisitions would require the sinking of new shafts and the providing of another surface plant and equipment.

At the present time there is not more than 60 per cent. of the coal extracted in a majority of the mines working the No. 8 seam in the Ohio field. No one will deny that it is shameful to admit that more than one-third of the coal must be left in the mine in working this seam, and it goes without saying that some other method than that in present use must be adopted whereby more coal can be recovered.

I would suggest, briefly, that the plan might be tried of driving double rooms, say 32 ft. wide, as shown in the accompanying figure, the room necks being driven 8



PROPOSED PLAN OF WORKING NO. 8 SEAM

ft. wide, a distance of 7 yd., leaving a 16-ft. entry stump between the openings. A track is laid along the straight rib on each side of the room, and a 32-ft. breast is driven up a distance depending on the conditions in any case. When the room has reached its limit, the 16-ft. pillar between the room and the one next adjoining is cut across at the face and the room pillar drawn back by taking a 5-ft. skip along the rib, using for this purpose a shortwall machine. When driving up the rooms all the waste is thrown into the center between the two tracks, which leaves the ribs clear and enables them to be drawn back readily.

I have outlined in the figure the general plan of this work. The butt-entries are driven 10 ft. wide with a pillar 8 yd. wide between them. When all the rooms of a pair of butt-entries are driven up, and the room pillars drawn back as far as the entry stumps, the work of drawing back the entry pillars and entry stumps is commenced. As shown in the figure, this work of drawing the entry pillars is started from the inby end or head of the entry on the retreating plan.

I believe that this method or a similar one will enable 95 per cent. of the coal to be extracted. The driving of wide rooms will produce a much larger percentage of lump coal. It will generally be found that two shots will be all that is required to break down the coal in a 32-ft. breast.

In drawing back the entry pillars and stumps, cribs should be used and switches laid at the face, as shown in the sketch. The cribs can be removed and used again repeatedly as the work progresses; likewise also the posts, which are set in two or three rows along the face of the pillars. It is important that these cribs and posts should not be drawn too rapidly, in order to prevent the roof from breaking over the pillars. A Sylat post puller should be used for drawing the timber. This machine allows the man to stand in a safe place a number of feet away from the post he is drawing. The cribs should be made of hardwood, each stick measuring 2 ft. in length and 8x8 in. in section. When building a crib, the first stick must be laid on a few shovelfuls of fine dirt, so as to provide for its ready removal when desired.

HARRY MARSON.

Wolf Run, Ohio.

The Mine Car Question

Letter No. 2—Manufacturers and mining men generally have doubtless read with interest the article by R. Z. Virgin, COAL AGE, May 1, p. 752, relating to mine cars and the changes that have taken place in their construction during the past few years. I notice that Samuel Dean has drawn attention to the same subject and has suggested a discussion of the question to bring out more clearly the conditions that must be met and the requirements of mine cars for good service. This inquiry of Samuel Dean appeared in COAL AGE, May 22, p. 904, and in the same issue, p. 900, was an interesting letter by P. F. Lynch, superintendent of Cross Mountain Coal Co., Briceville, Tenn. Discussions of this sort should prove very profitable both to the makers of mining equipment and to coal operators and mine superintendents.

Mr. Virgin's remarks are undoubtedly, for the most part, well founded. In the past few years there has been a tendency toward an extreme "battleship" type of mine-car construction at a great many mines. There has naturally followed a train of evils such as mentioned by Mr. Virgin; namely, the increased difficulty of handling the cars in the mine at the working face, the necessity for heavier locomotives to haul the cars and the requirements for heavier rails, and finally an increased cost of maintaining the roads in good condition. We have recently noticed, however, a tendency on the part of the more progressive mining men to get back to a lighter form of car for mine use—one that is especially adapted to the most economical handling of the coal under the particular conditions existing in their mines. As a consequence, the capacity of the cars, their length, width and height, size of wheels and track-gage are specified to conform to the conditions existing in the seam from which the coal is mined.

In considering this question, it is important not to overlook the changes in conditions with respect to underground haulage that have taken place during the past few years. In most mines mule haulage has been supplanted by some form of rope or locomotive haulage, electric or compressed-air locomotives being largely used on main-haulage roads. These changes demand a corresponding change in the character of the mine car and its equipment in order to obtain the greatest benefit and operate the system with the most economy.

While a mule can haul a certain tonnage per hour under given mining conditions and a light mine car built with a simple truck will stand up under the strain imposed by such a method of transportation, it must be remembered that under the increased tonnage hauled per hour where mechanical haulage is employed the same car will

not prove adequate, and as a consequence the cost of maintenance is greatly increased, repairs being more frequent and the life of the car being greatly diminished.

Practical mining men know that when a powerful locomotive is employed larger trips are hauled, and the consequent strain and jerks to which the cars are subjected soon send them to the repair shops and it is not long before they are relegated to the scrap heap. Again, the increased speed of hauling the cars is wasteful of the oil, which is thrown from the journals unless an improved form of car-wheel is adopted. The old-fashioned wheels are cut out, as a rule, in a few trips and become unserviceable.

To meet these arduous conditions requires an increased size and strength of the drawbars and other irons with which the car is equipped, and in many cases channel bars must be employed to give greater strength and rigidity to the cars. The manufacturers of car-wheels have sought to develop a type of wheel that will stand the increased severity of the service and carry the heavier loads at the greater speed without cutting out the wheels and with the greatest possible saving of power.

The roller-bearing wheel, in its present state of development, is the result of these efforts of car-wheel manufacturers. It is true that a set of four wheels of this type, for a 42-in. track-gage, the wheels being 16 in. in diameter and set on 2-in. axles, will weigh with boxes and bearings complete 125 lb. more per set than the simple type of truck formerly used, which is approximately an increase of 25 per cent. in the weight of the truck. But for this increased weight in the truck there is gained the decided advantage that the drawbar pull is reduced from 30 or 40 lb. per ton to as low as 11 lb. per ton of load hauled. This alone shows a total saving in power of from 60 to 70 per cent. The wheels will also run from 6 to 18 months without regreasing and will not cut out in the hub at any speed or length of haul.

The improved equipment of roller-bearing wheels, permitting the easy starting of the car, makes the proposition of handling the cars by hand in the rooms and working places a very simple one and is an important factor in increasing the daily output from each working place. It may be stated with certainty that the results obtained by the adoption of this improved equipment in mine cars fully justify the additional weight of the trucks and the increase in first cost of the equipment.

W. F. Daniels,
Enterprise Foundry & Machine Works.
Bristol, Tenn.

Stopping Payroll Leaks

Letter No. 4—It is commonly recognized in all mining communities today that producers of coal must look carefully to the cost of operating their mines. It is well known that the daily tonnage of a mine has a direct and powerful influence on the cost-sheet. Keen competition, however, has developed the fact that tonnage is not the only factor to be considered in relation to the cost of coal production.

Competition in the coal industry has necessitated a most careful preparation of the coal shipped to market. This is especially true in respect to the larger sizes of coal shipments. Again, the quality of the coal or its *heat value* is another determining factor in its selling price. Coal is now largely purchased by contract based on the heat units of the coal per ton as determined by analysis.

These conditions affect the coal miner and laborer equally with the operator. It is therefore a matter of great importance to all concerned to consider carefully what can be done to reduce the cost of operation and increase the value of the product. In this connection, I was glad to see the reference made by F. M., in Letter No. 3, Coal Age, May 22, p. 901, where he draws attention to a few of the "small items" that are so generally lost sight of in the operation of a mine.

I desire to refer briefly to one or two points of mismanagement that are of frequent occurrence in the mining of coal. I want to say first of all that the selling price of coal on the market does not dominate the conditions in a mine as much as the system of mining employed in the extraction of the coal. It is well known that market conditions vary. At times the demand for coal so far exceeds the supply that all mines are operated at their full capacity and every effort is made to produce a large output. At such times the demand for coal almost completely absorbs every other interest and things that should receive attention underground are neglected.

A little sober reflection will convince any practical mining man that this condition is wrong, as far as the cost-sheet is concerned. It is when the times are good that provision should be made for the carrying out of plans that will insure a more regular output in the future working of the mine. The necessary work of prospecting should then be performed and the required amount of narrow work pushed forward with great energy.

As a rule when the times are good and the demand for coal is urgent work is abandoned on the low coal and frequently pillar work is neglected, while the most attention is given to the thick coal. Would it not be better to give the same attention, as far as practicable, to all sections of the mine, with a view to its future development and keeping the workings generally well cleaned up? The extra expense attending many of these operations can be better borne when times are good than when the demand for coal is slack.

It seems only natural to consider that when times are poor the cost-sheet could be much reduced by giving more attention to the working of wide rooms and thicker coal where the best quality of lump coal can be produced at a small expense of labor. If necessary, at such times, stop all narrow work and all unnecessary day work. Due consideration should be given to the fact that when times are poor it is often possible to secure both labor and material at a reduced cost, and for this reason necessary development work can often be projected to advantage. I have often observed that the general tendency of operators in a dull season is to retrench and refuse to do such work until the approach of better times, when it is frequently difficult to secure the needed labor and material promptly as required.

I recall one instance when the mine where I was working only ran about eight or ten days in the month throughout the winter. Prospects improved on the approach of spring, and with a new contract in sight word was sent into the mine requiring a certain number of cars of screen coal. This was wanted at once for sample coal. It was found, however, that it was impossible to supply more than half of the number of cars required

of this kind of coal. An investigation was started to ascertain the reason for this and developed the fact shortly that the fault lay in the underground planning and development.

At first miners were blamed for not drilling the holes in the proper location for blasting, using too much powder, not undercutting or shearing their coal so as to give a shot the opportunity to perform its work and finally for the practice of shooting coal from the face before cleaning up the coal of a previous shot. All of these causes, it is clear, help to produce much fine coal and slack.

I believe, however, that the mine officials were more to blame for the overproduction of slack and fine coal than the miners themselves. Investigation showed that, in one fireboss section, out of 43 working places there were 25 employed on narrow work or entry driving, while five of the *rooms* also had to be driven narrow owing to bad roof and could not be cut with the machines, but must be worked by pick miners. This left only 13 wide rooms in this section containing 43 working places. Beside all this there were, in the same section, 18 cut-throughs being driven, which greatly increased the amount of fine coal and slack. No argument is required to show that this was a case of mismanagement and little foresight in planning and carrying on the work underground. It was found that at least 50 wide rooms could have been turned and put in condition for a good output of coal when needed.

Frequently the mistake is made of abandoning certain sections of a mine for work in other sections because of certain market requirements. In some instances rails, ties, posts, wire, pipe lines and other equipment are withdrawn for use in another section of the mine, only to be replaced later when work is resumed in the section from which they were taken.

While it is readily agreed that such a proceeding may be necessary to some extent under certain conditions, it is clear to all that every effort should be made to avoid such an exigency. The abandonment of a section of the mine before it is completely finished most always means an increased expense to clean up the rooms and roadways and equip the section again for work. Experience teaches that coal can always be mined more easily, and with less expense and greater safety, when the work is continued until the extraction is complete. I have worked at mines where certain sections have been abandoned once or twice before the pillars were finally drawn. In my opinion such practice is careless, expensive and dangerous in coal mining.

H. R. K.

Curtisville, Penn.

Study Course in Coal Mining

By J. T. Beard

The Coal Age Pocket Book

Molecular Theory of Matter—Chemical investigations have led to the accepted conclusion that all matter is composed of minute particles called **molecules,** the molecule being considered the smallest division of which the matter is capable without destroying its identity.

Theory further assumes that the molecule is composed of two or more **atoms,** like or unlike, but bound together by a force of attraction for each other known as **affinity.** Each of these combined atoms represents an **element** or a particular kind of matter and their combination as molecules diversifies matter and creates substances of various nature and kind.

Atomic Weight—Atomic weight is simply relative. The atom of each element has a weight peculiar to that element, referred to the weight of the hydrogen atom as **unity.**

Molecular Weight—The molecular weight of a substance is equal to the sum of the atomic weights of the elements of which it is composed. These elements combine in **fixed proportions,** which are determined by the number of atoms that saturate each other or the **"valences"** of the elements.

Valence or Valency—The valence of an element is a term used to express its **combining power** in relation to the number of atoms of hydrogen (the assumed **unit**) or its equivalent required to satisfy the affinity. For example, two atoms of hydrogen are required to saturate a single atom of oxygen, and the valence of hydrogen being one, the valence of oxygen is two. The reaction is expressed by the chemical equation

$$2\ H_2 + O_2 = 2\ H_2O.$$

There are many elements, however, that do not unite with hydrogen and to determine their valency it is necessary to compare them with other elements that combine with them and whose valence is known. For this purpose the elements **oxygen and chlorine** are most convenient. The valence of oxygen, as shown above is **two.** The valence of chlorine is **one,** since one atom of hydrogen completely saturates one atom of chlorine.

$$H_2 + Cl_2 = 2\ HCl.$$

The element calcium combines both with oxygen and with chlorine but not with hydrogen alone. Its valence is two as shown by the following equations:

$$Ca_2 + O_2 = 2\ CaO$$
$$Ca_2 + 2\ Cl_2 = 2\ CaCl_2.$$

The **valence** of most elements is **not absolute** but changes, often by two and frequently by successive units. For example, calcium has a valence of two and four; gold, one and three; copper, one and two; iron, two, three, four and six; while nitrogen forms the following series of oxides:

$$N_2O,\ N_2O_2,\ N_2O_3,\ N_2O_4,\ N_2O_5.$$

Classification of Elements by Valence—Owing to the change in valency exhibited by many elements it is not possible to make an unvarying classification in this respect. For the sake of convenience, however, many of the elements are designated as **univalent, bivalent, trivalent, quadrivalent,** etc.; or as **monads, dyads, triads, tetrads, pentads, hexads,** etc., according as they exhibit valencies of one, two, three, four, five, six, etc., in combining with other elements.

The Coal Age Pocket Book

A Chemical Compound—A chemical compound is a substance composed of molecules formed by the chemical union of two or more unlike atoms. In a chemical compound the elements are always combined in **fixed proportions** and the substance has fixed properties that are always the same.

A Mechanical Mixture—A mechanical mixture is composed of unlike substances mixed together in any proportion and not chemically combined. The properties of such a mixture vary with the kind and proportion of the substances of which it is formed.

The **atmosphere** is a mechanical mixture of oxygen and nitrogen. Although the proportion of these gases is practically always the same in pure air, the gases are only mixed and do not combine with each other.

Acids, Bases and Salts—Chemistry considers three general classes or conditions of matter, which make the substance either an acid, a base, or a salt.

Briefly and plainly stated, an **acid** is a substance that dissociates in aqueous solution yielding hydrogen ions.

A **base** is a compound capable of reacting with an acid to produce a salt. It is an alkaline metallic oxide.

A **salt** is a generally neutral compound formed by the union of an acid and a base.

In general the **nature of an acid** is the direct opposite to that of a base. In combination they neutralize each other, forming a neutral salt and water. The **distinguishing characteristics** of all acids are: 1. The sour taste. 2. The turning of blue litmus red. 3. The evolution of hydrogen by contact with a metal.

A number of acids are formed by the direct union of hydrogen with another element; as hydrochloric acid (HCl); hydrogen sulphide (H_2S). Other acids are formed by the union of two radicals—the hydrogen radical or hydroxyl (HO) and an acid radical; or they may be considered as the result of the addition of water (H_2O) to an anhydrous acid (anhydride).

In the first instance, the formation is as follows:

Hydrogen radical (hydroxyl)	2(HO)
Acid radical	SO_2
Sulphuric acid	H_2SO_4

Or, again, the formation may be regarded thus:

Water	H_2O
Sulphuric anhydride	SO_3
Sulphuric acid	H_2SO_4

Oxides—Nearly all the elements unite with oxygen to form oxides, but the affinity for oxygen is stronger in some cases than in others. When the affinity of the elements for each other is strong the compound formed is more stable than when the affinity is weak.

A **monoxide** is formed when the molecule contains but one atom of oxygen; as for example, carbon monoxide (CO).

A **dioxide** is formed when the molecule contains two atoms of oxygen, as carbon dioxide (CO_2).

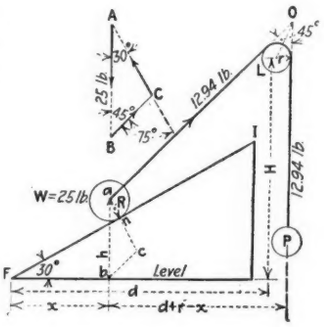
A **trioxide** contains three atoms of oxygen.

Inquiries of General Interest

A Question in Mechanics

There is an interesting problem in regard to balancing a given weight on a plane having a given inclination, which has excited considerable interest and I would like to see the same answered in COAL AGE. The question is as follows:

Referring to the accompanying figure, find what weight or downward pull P will support a weight W = 25 lb. on an incline making an angle of 30 deg. with the horizontal when the pulley L is at such a height H above the foot of the incline that the rope supporting the weight W and running over the pulley L is not parallel to the incline. It will be observed that the ratio between the weight W and the balancing pull P is not constant, since the angle that the rope makes with the incline constantly changes, according to the position of the weight on the incline.



J. R. L.

Seattle, Wash.

As correspondent states, the angle that the rope makes with the incline is constantly changing. For this reason it is impossible to get any simple expression for the ratio of the weight moving on the incline to the balancing pull.

Referring to the accompanying figure, let FI be the incline on which the weight W (25 lb.) is supported by the rope that passes over the pulley L, the balancing weight being shown at P. Assume the radii of the weight, ball or wheel W and the pulley L to be R and r, respectively. Call the horizontal distance from the foot of the incline to the center of the pulley d, and the horizontal distance from the foot of the incline to the center of the weight x. Then the horizontal distance from the center of W to P is $d + r - x$.

Now, it is possible to find the distance x, which determines the position of the weight W, for any assumed angle that the rope makes with the vertical or the angle of contact on the pulley. For example, taking the angle of contact on the pulley as 45 deg., as indicated in the figure, the horizontal distance from the foot of the incline to the center of the weight or the distance x is found by applying the principles of geometry; thus,

$$x = (d + r) - \left[H - h + \frac{r}{tan\ \frac{1}{2}(45°)}\right] tan\ 45°$$

But, since the tangent of 45° = 1 and tan ½ (45°) = tan 22° 30′ = 0.414, and assuming the following values, which are known or can be found: H = 64 ft., d = 75 ft., R = 5 ft., r = 4 ft., we have, by substituting these values in the above equation,

$$x = (75 + 4) - \left(64 - h + \frac{4}{0.414}\right) = 5.34 + h$$

But by the principles of geometry

$$h = \left(x + \frac{R}{sin\ 30°}\right) tan\ 30°$$

$$h = \left(x + \frac{5}{0.5}\right) 0.577 = 0.577x + 5.77$$

Then, substituting this value of h in the previous equation, we find for the value of x

$$x = 5.34 + 0.577x + 5.77$$
$$x(1 - 0.577) = 5.34 + 5.77$$
$$0.423x = 11.11$$
$$x = \frac{11.11}{0.423} = 26.26 \text{ ft.}$$

Finally, to find the distance Fn (see figure) measured on the incline from its foot to the weight W, we have

$$Fn = \frac{x + R \times sin\ 30°}{cos\ 30°} = \frac{26.26 + 5 \times 0.5}{0.866} = 33.2\ ft.$$

The weight required to balance 25 lb. in this position on the incline is now found from the triangle of forces ABC, shown in the figure, and which corresponds to the triangle abc indicated just below it on the incline. In the triangle of forces ABC, AB = 25 lb., and the angles are A = 30°, B = 45°, while the external angle C is equal to the sum of the other two interior angles A and B, or 30 + 45 = 75 deg. The side BC, drawn parallel to the rope supporting W, represents the pull required to balance that weight in this position on the incline. Hence,

$$BC = AB \frac{sin\ 30°}{sin\ 75°}; \text{ or } P = W \frac{sin\ 30°}{sin\ 75°}$$

$$P = 25 \frac{0.5}{0.966} = 12.94\ lb.$$

This problem although interesting is of value only as a mathematical drill.

An Electrical Question

Assuming that a man is in contact with a live wire and it is necessary to short-circuit the current in order to rescue the man, should this be done between the man and the power station or just beyond the man; or will it make any difference?

A. P. CAUDELL.

Hannastown, Penn.

The current may be short-circuited with practically the same result on either side of the man, but as close to him as practicable. The small resistance represented by the short length of trolley wire between these two points is so slight comparatively that it is negligible. It is more important to make the short-circuit as quickly as possible at the most convenient point close to the man.

Examination Questions

Pennsylvania Anthracite Mine Foreman's Examinations, Held May 18-20, 1915

(*Selected Questions*)

Ques.—If 50 rev. of a fan give a 4-lb. pressure, what will the same fan give if the speed is increased to 70 r.p.m.?

Ans.—Approximately, the pressure developed by a centrifugal fan varies as the square of the speed of the fan. In other words, the pressure ratio is equal to the square of the speed ratio; or in this case

$$\frac{p}{4} = \left(\frac{70}{50}\right)^2 = \left(\frac{7}{5}\right)^2 = \frac{49}{25}$$

$$p = \frac{4 \times 49}{25} = 7.84 \textit{ lb. per sq.ft.}$$

In actual practice, however, this result is not realized, but the fifth power of the pressure varies as the eighth power of the speed. In other words, the pressure ratio is equal to the fifth root of the eighth power of the speed ratio, which gives

$$\frac{p}{4} = \sqrt[5]{\left(\frac{7}{5}\right)^8} = \sqrt[5]{1.4^8} = \sqrt[5]{14.76} = 1.7$$

$$p = 4 \times 1.7 = 6.8 \textit{ lb. per sq.ft.}$$

This result (6.8 lb.) will closely approximate the change in the pressure due to the action of a properly designed centrifugal fan.

Ques.—If suddenly you found yourself in an explosive mixture of gas, state briefly what you would do.

Ans.—This question assumes of course that the safety lamp shows the presence of the explosive gas by the flame cap or the action of the flame within the lamp; also, it is assumed that no open light is present. If the gas is sharp, light explosions may occur within the lamp, or in any case the lamp may fill with flame. It is important to withdraw the lamp from the gas on the first appearance of danger promptly, but not too rapidly. A sudden or quick movement of the lamp, under these conditions, may cause the flame to pass through the gauze and ignite the gas outside. When the lamp flames, the greatest danger occurs as the lamp is withdrawn from the gas and purer air begins to enter the combustion chamber. The entrance of the fresh air often increases the explosive condition of the mixture within the lamp, and may cause a violent explosion that would force the flame through the gauze. Therefore, the lamp should be lowered promptly but steadily from the gas and carefully smothered underneath a coat if still flaming. The person should withdraw quietly and promptly from the gas, stooping low and moving quietly in order not to disturb the gas more than necessary. It may often happen that his entrance has so disturbed the gas at the roof that it now completely fills the place and cuts off his retreat for a considerable distance. To avoid walking into a body of gas unwarned, a person should make a careful test in all suspected places at frequent intervals as he proceeds.

Ques.—If you fail to bar or blast down suspicious roof, would you stand one or two props? State why. What is a guard prop?

Ans.—In answering this question, it is well to observe, first, that a person should not "fail" to take down loose slate or rock whenever practicable. If, however, it is deemed impracticable to take down the loose piece, it should be timbered and made secure before work is begun or continued. The question of whether one or two props should be set depends on a knowledge of the nature and condition of the roof, particularly that of the loose piece. A practical miner will use his own judgment in deciding where and how many posts should be set. A single post may often give opportunity for the loose piece to swing, in which case the post set may do more harm than good. This will be carefully guarded against in deciding what timbers are necessary to make the place safe.

A guard prop is a temporary prop set to protect a miner while at work against a possible fall of roof at the face. It often happens that an unexpected fall of roof at the face occurs when the coal is being mined, owing to a slip in the roof over the coal and which draws back from the face. This slip causes the roof to give away over the miner as the coal is mined.

Ques.—An airway is 6570 ft. in length; the height is 7 ft. and the breadth 12 ft. What ventilating pressure will be required to pass 80,640 cu.ft. of air per minute through the air course, using the constant 0.00000001?

Ans.—The perimeter of this airway is $2(7 + 12) = 38$ ft. and its rubbing surface is therefore $6570 \times 38 = 249{,}660$ or, say 250,000 sq.ft. The sectional area is $7 \times 12 = 84$ sq.ft. The velocity of the air current required to pass 80,640 cu.ft. of air per minute in this airway is $80{,}640 \div 84 = 960$ ft. per min. The required ventilating pressure is therefore

$$p = \frac{0.00000001 \times 250{,}000 \times 960^2}{84} = 27.4 \textit{ lb. per sq.ft.}$$

Ques.—If 9 cu.ft. of gas be exploded, how many cubic feet of flame will it make?

Ans.—The volume of flame produced by the explosion of a body of gas in the mine cannot be accurately estimated, as it depends on too many varying conditions such as the nature and composition of the gaseous mixture and the temperature, due to the explosion, as determined by the surrounding conditions and the manner of ignition of the gas.

Assuming that this is a mixture of marsh gas and air at its most explosive point and that the conditions are such that the maximum theoretical flame temperature is attained in the explosion, the volume of flame resulting can be calculated from this temperature (4270 deg. F.), assuming that this volume is proportional to the absolute temperature of the explosion. On this basis, the flame volume of pure methane, mixed with air at its most explosive point, is $460 + 4270 \div 460 =$ say 10 vol. If the original volume of the firedamp is 9 cu.ft., the theoretical flame volume will be $9 \times 10 = 90$ cu.ft.

Coal and Coke News

Harrisburg, Penn.

Before adjourning on May 26, the State Supreme Court fixed July 1, at Philadelphia, as the time when it would hear the anthracite coal tax case.

If the coal companies lose the case before the State Supreme Court, it is their intention to appeal their case to the United States Supreme Court. It is thought that it will take three or four months before a decision is rendered by the State Court, and after an appeal to the United States Court is taken it will require from a year and nine months to two years before the case will be reached on the argument list.

Even if the courts should void the state's effort to levy a direct tax on anthracite, the coal producers and dealers are not likely to retain the money alleged to have been collected from the consumer because of the coal tax law.

Plans are under consideration in the Auditor General's department to have all such money turned into the state treasury or refunded to the consumer who is supposed to have paid it. The escheat bill passed by the recent Legislature is the weapon which will be of use in such a process. This act is now in the Governor's hands, and he is expected to approve it.

The anthracite taxation contest may not be settled for at least two years, and if the plans of the Auditor General do not miscarry, will afford probably the first example of either the state or the people getting the money regardless of what the courts may decide.

The Auditor General's position is this: The coal companies are alleged to have collected the amount of the tax, through the retailer, from the consumer. If the courts decide the act is unconstitutional and cannot be used for future taxation, the coal companies have no right to the money which it is alleged has been collected. It must be returned to those who paid it; if it cannot be or is not so returned, then, under the new escheat law, it can and will be brought into the state's treasury.

The coal companies in appealing from the tax and carrying the act of 1913 into the courts seem to share this opinion, for they have laid their case from the start in such a way as to permit them to carry it before the Supreme Court of the United States if necessary. They plan to go before the U. S. Supreme Court on the grounds that the act violates the 14th amendment, which prohibits confiscation of property without due process of law.

A Labor Shortage Is Threatened

Western Pennsylvania coke operators, who fear demoralization of their business through a labor shortage due to Italy's entrance into the war, are increasing their output to an amount greatly above normal for this season of the year. Coal operators are taking a similar precaution, basing their policy on a theory of a shortage due principally to an exodus of workers, heavy exports and larger consumption due to industrial expansion.

The largest percentage of operations in the coke region is carried on by foreign labor. This is also true of coal mining. In railroad construction and repair work the percentage of American labor employed is very low. Thus it is possible that all of these lines may be seriously affected should the European struggle be protracted. As there is not the slightest indication that the war will end in anything like the near future, coal and coke operators consider it wise at this time to increase production.

PENNSYLVANIA

Anthracite

Locust Gap—About 1200 employees of the Philadelphia & Reading Coal & Iron Co. in the Locust Gap Colliery, recently went on strike asserting that the company has employed a number of miners to cut coal at a rate of $4.85 a yard, whereas under the agreement of 1912 the rate for this work should be $5.54. It is alleged also that the price for robbing pillars has been cut 15 per cent.

Scranton—Breaking through the pillar which separates the workings of the Delaware & Hudson No. 1 Colliery at Carbondale from the old drift in which anthracite coal was first mined in this country, on May 27, Evan Williams, a miner, came upon the skeleton of a man. Around the chamber were the bones of several other men. It was determined on investigation of the mine records that these bones were those of eight men who were entombed by a fall of rock in the old drift on Jan. 12, 1846.

Wilkes-Barre—An unusual legal action was recently started in Luzerne County when William Bolewicz, of Nanticoke, brought suit against William Miklosziewicz, of the same place, asking $10,000 damages for injuries received by a fall of rock in a mine accident at Stearns Station. The plaintiff was employed as a laborer for the defendant and charges that the miner was responsible for the accident in not making an investigation of the roof after a blast was fired.

Tamaqua—Because the Lehigh Coal & Navigation Co. issued an order at No. 14 colliery that batteries must be used instead of fuse in firing shots, several of the miners quit work. The men say the fuse is more convenient for them, while the company declares that the battery is the only safe method of firing in a gaseous mine.

Kingston—An interesting and important lawsuit involving the ownership of coal land, which brings the title and basis for the litigation back to the settlement of Luzerne County in 1769, is that of the trustees of the proprietors of Kingston Township against the Kingston Coal Co. for a claim for damages for coal removed from a tract of 95 acres, mostly under the borough of Kingston. The suit is similar to the trial brought a few years ago between the same plaintiffs and the Lehigh Valley Coal Co., at which the verdict was returned for the proprietors of Kingston for nearly $102,000, but in that case a new trial was awarded by the Supreme Court on technical grounds and a settlement was affected between the parties out of court. The present suit is in the nature of a test case, and is for $20,000 by agreement, and to be followed, if the plaintiffs win, by further suits or a settlement by an accounting.

Lansford—The Lehigh Coal & Navigation Co. has begun the reforestation of its land in the Panther Creek Valley. Carl Neumiller, chief forester for the company, has commenced work on Broad Mountain, opposite Hauto, and has a force of men at work planting spruce, hemlock, white pine, yellow pine and ash trees. Twelve hundred of these trees are being planted daily. To insure the seedling against destructive forest fires the entire area selected for reforestation is surrounded by an opening 20 ft. wide. The company's work of reforestation will not be confined to Broad Mountain, but will be continued until all the company's thousands of acres of land, no matter where located, are reforested.

Pittston—Collieries in Pittston and its vicinity have thus far entirely escaped the epidemic of unauthorized "button" strikes and suspensions for other causes that has been raging in District No. 1, including Luzerne and Lackawanna Counties.

Pittston's Mining Institute will lose its efficient secretary-treasurer through the resignation of David M. Howell of the Pittston Y. M. C. A., who takes up similar work in Pittsburgh. Mr. Howell has been the moving spirit in the mining institute since it was organized.

Bituminous

Pittsburgh—Coal operators are showing considerable concern over the latest development of the European war because of its affect on the labor supply at the mines. It is estimated that at least 10 per cent. of the mining population of the Pittsburgh district is composed of Italians. These are already beginning to drift from the mining towns to seaports. It is thought that normal production in the Pittsburgh district would make the present shortage of miners a serious matter. It is believed that in addition to the 7500 men who have already gone from the Pittsburgh district from 2500 to 3000 more will leave within the next few weeks.

Due to the fact that John H. Jones, receiver for the Pittsburg-Buffalo Co., took an appeal to the Supreme Court from the decision of the lower court, which court authorized the properties to be sold May 27, sale of the properties has been adjourned pending decision to be handed down by the Supreme Court. The properties will continue to be operated by the receivers pending final decision as to their sale, and as to the right of the Union Trust Co., of Pittsburgh, Penn., to sell them.

Connellsville—The Connellsville coke trade shows a production and output decidedly increased from previous figures. The production and shipments recently reached 305,000 tons, being a record for the present year. One thousand four hundred idle ovens were recently fired, most of which were non-productive until the present.

Uniontown—The H. C. Frick Coke Co. has fired 1090 ovens since May 20. This firm has been operating on a 63 per cent. basis, but for the last two weeks has been working its men six days each week. It is understood that a stock of coke is being accumulated.

Quemahoning—M. L. Reiman and Luther T. Gardner, of Johnstown, have secured options from 25 farmers of Quemahoning Township, Somerset County, for something like 3000 acres of coal lands, which they expect to dispose of to Raymond Havemeyer, of the American Sugar Co., who recently inspected the tract. The tract extends from Quemahoning Dam site to Stoyestown and Hooversville and adjoins the property owned by the Federal Coal Co., the Quemahoning Coal Co. and the Randolph Coal Co. It is possible that the deal will be consumated within the next week or so when a corps of engineers will be put to work on the tract. It is said that Mr. Havemeyer has an option on some 500 acres of coal located near the Quemahoning Dam that adjoins the property about to be taken over.

Scottdale—Arrangements have been made for reopening the Strickler Works, in Mt. Pleasant Township, Westmoreland County, after a complete shutdown of many months. The plant is owned by J. A. Strickler, banker and coal operator of Wilkinsburg, Penn.

Bentleyville—The Pittsburgh Westmoreland Coal & Coke Co. at this place is constructing a new and uptodate lamp house on the foundation of the one recently destroyed by fire and explosion. The new structure will be of brick and concrete and will be thoroughly fireproof. New equipment will be installed.

WEST VIRGINIA

Huntington—May was one of the greatest coal loading months in the history of the Chesapeake & Ohio R.R. Up to the 28th of the month 1,797,590 tons had been loaded, and it is believed that when figures are all in they will show that over 2,000,000 tons were shipped. During the first half of May 16.3 per cent. more coal was taken out of the field than during a corresponding period of last year, and this with a reduction of 6.2 per cent. in the railroad pay roll.

Wheeling—Andrew Ferari, of Wheeling, recently appeared by counsel before Judge Robert M. Addleman and asked for a receiver for the Parisian Coal Co. in which he is a partner. The judge postponed action until the opening of the June term of court, and suggested that in the meantime the partners get together and compose their difficulties.

Bluefield—The entry of Italy into the European war is already having its effect in the coal operations throughout the Norfolk & Western territory, and it is feared that the departure of many of these men will seriously cripple operations which have been retarded for several weeks on account of a scarcity of labor. It is believed that one-fourth of the coal miners employed in this field are Italians, 45 per cent. of which are of the reservist class.

TENNESSEE

Knoxville—The Tennessee Legislature has just passed an act that provides for removing 500 of the 800 convicts from the state mine and coke ovens during the summer months and working them on the roads. This will tend to make better roads and less competition in the coal market when there is practically no demand for large quantities of coal. The 300 convicts kept at the mine during the summer are considered to be what is sufficient only to keep the plant in proper working condition and keep up with what contracts have to be filled in the summer months. This operation is what is commonly known as the Brushy Mountain mine and is located near Petros, on the Harriman & Northeastern R.R., which is operated by the Queen & Crescent. A few of the convicts have already been put to work on the roads near Petros, and the balance of the 500 will be taken from the mine as fast as the necessary equipment can be provided for working and caring for them on the roads throughout the state and contracts made with the various counties to use them.

OHIO

Bellaire—Four hundred more coal miners will go to work when the Pultney mine of the George M. Jones Co., south of the city limits, starts operation after an idleness of 14 months. Machine men are now in the mine preparing for the resumption of work. This mine is one of the largest in this section of the country.

Flushing—Seventy-five miners employed in the Tunnell mine were imprisoned recently when the timbers at the pit mouth gave way, allowing the entry to fall in. The men escaped through an air shaft a mile distant. The timber supporting the pit mouth had decayed badly during the 14 months' strike, and finally gave way.

Columbus—New mining safety problems confront State Mine Commissioner John M. Roan as the result of the prospective opening of eastern Ohio mines, which have not been worked for more than a year, the longest period of idleness in the state's history. Commissioner Roan is making a thorough survey of the every mine before permission to resume operations is granted. Most mines will not start for a week or more it is said.

INDIANA

Indianapolis—The Supreme Court of Indiana, in a case in which the Jacksonville Coal & Coke Co. was interested recently decided that a mining company must leave sufficient support in a mine for the soil above although it is not required that the support be sufficient to carry heavy buildings placed on it by the owner of the surface. The suit was for damages because the land settled owing, it was alleged, to the negligent manner in which the coal was mined underneath.

ILLINOIS

Lincoln—A receiver has been appointed for the Latham Mining Co. of Lincoln, following a foreclosure suit filed by the Sangamon Loan & Trust Co. The mining company has failed to redeem a large part of $60,000 bonded indebtedness.

Dunfermline—The operation of the Dunfermline mine of the Big Creek Coal Co. was assured for several years by the closing of leases on 550 acres of land. These leases were recently consummated and the shortest of them runs for 15 years.

FOREIGN NEWS

Nanaimo, B. C.—Volunteer rescuers on May 28 entered the lower workings of the Reserve mine of the Western Fuel Co. in search of the bodies of 19 miners who were entombed on the night of May 27, by an explosion of gas. The bodies of three miners were recovered as well as a fourth man who was so badly injured that he is not expected to live. Scant hope was entertained that any of the entombed men could be rescued alive, and the mine officials turned their attention to restoring the system of ventilation.

PERSONALS

C. C. Scott has been named to succeed E. E. Russell as mine foreman at Flat Top mine, the appointment having been made by Governor Henderson recently.

George M. Isaacs, who was formerly with the W. J. Hamilton Coal Co. and its successor the Maple Hill Coal Co. for 11 years, has taken a position as Indiana salesman for the Pocahontas Coal Sales Co. of Detroit.

W. D. Roberts, of Huntington, W. Va., has written a book entitled "Logan County Coal." The reason for this production is to further a campaign of education among the large users of coal to the economic necessities that the producer should be paid a better price.

Richard Krapf, outside foreman at the Phoenix Park Colliery of the Philadelphia & Reading Coal & Iron Co., has resigned his position to become coal inspector of the sales department of the Maderia-Hill Co. He will be connected with the Pottsville offices and will make his residence there.

W. H. Clingerman, president of the H. C. Frick Coke Co., recently received a painful injury in one eye, while returning to Scottdale from one of the mines, in an automobile. A branch of an overhanging tree whipped against Mr. Clingerman's face with great force, and one eye was seriously cut. His physicians have ordered complete rest for both eyes during several days.

R. A. Shiflett, better known in the mining regions of East Tennessee as Bob Shiflett, recently received from the Governor his commission as chief mine inspector, succeeding George Sylvestor, appointed four years ago. Mr. Shiflett served in the capacity of mine inspector for a four-year term under McMillim. Again a similar term during the Frazier administration, and still again under ex-Governor Patterson.

Merton A. Pocock has been appointed district sales manager for the territory included in the States of Minnesota, North Dakota and South Dakota by the Terry Steam Turbine Co. His office is 400 Endicott Building, St. Paul. This arrangement supersedes the previous selling agreement with Robinson, Cary & Sands Co. of St. Paul.

The above company has also appointed the Hawkins-Hamilton Co., People's National Bank Building, Lynchburg, Va., its representatives for the State of Virginia.

OBITUARY

Frank Hopkins, of Sebastopol, an assistant mine foreman for the Pennsylvania Coal Co., died recently at Pocono Pines, where he had gone some weeks ago for the benefit of his health. The body was returned to Sebastopol for interment.

J. C. Hayden, of Jeansville, Penn., died May 27 of apoplexy, at the age of 81 years. He had been ill for the past year from heart and kidney trouble. Mr. Hayden was a pioneer anthracite coal operator, but sold his mining property to the Lehigh Valley Coal Co. years ago. He was the founder of the Jeansville Iron Works, which is now controlled by the International Steam Pump Co.

Reese Tasker, general inside superintendent of the Philadelphia & Reading Coal & Iron Co., died at his home on George St., Pottsville, on the afternoon of May 31, from the effects of a stroke of paralysis. He was prominent in mining circles for nearly a half century, his knowledge of the inside workings of the 55 collieries of the Reading company making him a highly valued man, whose loss, the officials say, will be difficult to replace.

Andrew Jackson Reilly recently died in the office of Dr. U. J. W. Peters in the Empire Bldg., at Birmingham, Ala. Mr. Reilly came to Birmingham about 30 years ago from Philadelphia to take the position of chief engineer with the old Ramsey & McCormack Coal & Iron Co. He remained with the concern for about 15 years, and then opened an office in Birmingham as consulting mining engineer. He later bought the Fairchilds Coal Co. of Inland and until the time of his death was actively engaged in the management of this concern of which he was the owner.

RECENT COAL AND COKE PATENTS

Dump Car. J. J. Irvin, Bellwood, Penn., 1,134,859, Apr. 6, 1915. Filed June 17, 1913. Serial No. 774,168.

Miner's Lamp. S. J. Yellen, Great Neck, N. Y., 1,136,303, Apr. 20, 1915. Filed Oct. 1, 1914. Serial No. 864,461.

Smoke Consumer. O. Olson, Minneapolis, Minn., 1,134,553, Apr. 6, 1915. Filed Dec. 13, 1912. Serial No. 736,606.

Coal and Rock Drill. P. Jopling, Rock Island, Ill., 1,135,530, Apr. 13, 1915. Filed Jan. 5, 1911. Serial No. 600,889.

Baffle for Water Tube Boilers. G. Kuehne, Chicago, Ill., 1,135,535, Apr. 13, 1915. Filed Apr. 9, 1914. Serial No. 830,599.

Fire Box for Boilers. F. M. Jacobs, Atchison, Kan., 1,135,114, Apr. 13, 1915. Filed May 20, 1914. Serial No. 839,698.

Fuel Feeding Mechanism for Furnaces. C. I. Filson, Burnham, Penn., 1,134,600, Apr. 6, 1915. Filed Apr. 11, 1914. Serial No. 869,403.

Feeding Device for Furnace Grates. G. H. Thatcher, Jr., Albany, N. Y., 1,134,167, Apr. 6, 1915. Filed Oct. 22, 1912. Serial No. 727,147.

Mining Machine. A. H. Gibson, assignor to Ingersoll-Rand Co., New York, 1,134,734, Apr. 6, 1915. Filed Dec. 3, 1910. Serial No. 595,473.

Smoke Consuming Apparatus for Boiler Furnaces. F. Gareau, Montreal, Canada, 1,135,275, Apr. 13, 1915. Filed Mar. 5, 1914. Serial No. 822,657.

Extension Frame for Mining Drills. G. W. Morgan and L. Evans, Commerce, Okla., 1,133,442, Mar. 30, 1915. Filed Oct. 15, 1914. Serial No. 866,804.

Hopper Car. F. L. Barber and E. W. Webb, assignor to Standard Car Truck Co., Chicago, Ill. 1,134,251, Apr. 6, 1915. Filed Oct. 30, 1914. Serial No. 869,403.

Coal Breaking and Screening Machine. J. L. Hiller, assignor to Pennsylvania Crusher Co., New York, 1,135,796, Apr. 13, 1915. Filed May 1, 1911. Serial No. 624,291.

Smoke Consuming Furnace. H. L. Price and G. J. Cartwright, Sydney, New South Wales, Australia, 1,135,842, Apr. 13, 1915. Filed Dec. 11, 1913. Serial No. 805,959.

PUBLICATIONS RECEIVED

"Tenth Biennial Report of the State Mine Inspector of the State of Utah, 1913-14"; 149 pp., 6x9 in., illustrated.

Department of the Interior, Bureau of Mines. **Bulletin** 87. "Houses for Mining Towns," by Joseph H. White. Sixty-one pages, 6x9 in., illustrated with halftones and drawings.

Department of the Interior, Bureau of Mines. "Monthly Statement of Coal Mine Fatalities in the United States, February, 1915." Compiled by Albert H. Fay; 12 pp., 6x9 in., unillustrated.

Department of the Interior, Bureau of Mines. "Coal Mine Fatalities in the United States, 1914; with detailed figures for December." Compiled by Albert H. Fay; 31 pp., 6x9 in., unillustrated.

Department of the Interior, U. S. Geological Survey, Water Supply Paper 375-A. "Ground Water for Irrigation in the Sacramento Valley, Calif." by Kirk Bryan. Forty-nine pages, 6x9 in., illustrated.

Department of the Interior. U. S. Geological Survey. Water Supply Paper 343. "Geology and Water Resources of the Tularosa Basin, New Mexico," by O. E. Meinzer and R. F. Hare; 317 pp., 6x9 in., illustrated.

The Kanawha Mine Car Co., Charlestown, W. Va. "Coal Mine Equipment." Two hundred and four pages, 8½x5 in., illustrating and describing mine cars, monitors, tipple equipment, car couplings, and various other supplies used about coal mines.

Department of the Interior, Bureau of Mines. Technical paper 89. "Coal Tar Products, and the Possibility of Increasing their Manufacture in the United States," by Horace C. Porter, with a chapter on "Coal Tar Products Used in Explosives," by C. G. Storm. Twenty-one pages, 6x9 in., illustrated.

Department of the Interior, Bureau of Mines, Technical Paper 90. "Metallurgical Treatment of the Low Grade and Complex Ores of Utah." A preliminary report by D. A. Lyon, R. H. Bradford, S. S. Arentz, O. C. Ralston, and C. L. Larson, issued jointly by the Bureau of Mines, and the Department of Metallurgical Research of the Engineering Station of the University of Utah. Forty pages, 6x9 in., unillustrated.

INDUSTRIAL NEWS

Bicknell, Ind.—The American Coal Mining Co. has just given the Link Belt Co. an order for additional equipment for its mine at Bicknell, Indiana.

Uniontown, Penn.—Decisions in the petitions for leave to file suits against J. V. Thompson and others now in the hands of receivers will not be handed down by Judge J. Q. Van Swearingen before June 15.

Lexington, Ky.—The Kentucky River Coal Corporation, a leasing company recently formed by the consolidation of the Haley Coal Co., the Slemp Coal Co., and others, has established headquarters at the Fayette National Bank Building, Lexington.

Columbus, Ohio—The Ralston Steel Car Co., of Columbus has secured a contract from the Pennsylvania R.R. Co. to build 1000 all-steel hopper cars for coal traffic. The Ralston company is just completing a 200-car order from the Baltimore & Ohio R.R. Co.

Roundup, Mont.—The Roundup Coal Co. has placed an order with the Link-Belt Co. for a complete tipple and screening equipment. This company is the designer, engineer and manufacturer of the entire equipment, the cost of which will be approximately $25,000.

Uniontown, Penn.—The injunction hearing of the Rainey company against D. J. Johnson and C. W. Johnson to restrain them from drilling through the Rainey workings at Percy which was to have been heard before the court May 18 was continued until June 22 by agreement of counsel.

Washington, D. C.—Rates on bituminous coal from the Crooksville, Ohio, coal district to Chicago and points in Illinois, Indiana and Michigan, were recently pronounced unjustly discriminatory by the Interstate Commerce Commission as against rates from mines in the middle district of Ohio.

Charlestown, W. Va.—William L. Connell, president of the Paint Creek Colliery Co., was recently named as its receiver on a petition of a Scranton, Penn., banking house. Liabilities are given as $100,000. This company operates one of the most important coal developments in the Kanawha field.

Kansas City, Kan.—The new automatic coal and ash handler which was recently installed in the municipal plant at Kansas City, Kan., was set in motion May 19. The change from handling coal through the old carrying, hauling and shoveling methods it is estimated will save the city $5000 a year in operating expense.

Youngstown, Ohio—The Republic Iron & Steel Co. has awarded a contract for the construction of storage bins at its new byproduct coke plant to the McClintic-Marshall Construction Co., of Pittsburgh. The job will call for 600 tons of structural steel. The bins will be used for the storage of the coal required in the operation of the plant.

Chattanooga, Tenn.—The byproduct coke plant at Alton Park is almost completed, and fires have been lighted under a battery of the coke ovens. The production of coke in large quantities will begin during the present month. Gas is now being used from the Chattanooga mains, but as soon as the ovens are brought to the proper temperature, gas will be supplied to the city.

Seattle, Wash.—After a controversy lasting nine years, the government has finally issued a patent to Morris A. Arnold, president of the First National Bank of Seattle, for a claim in the Bering River coal field of Alaska. The claim is one of three located in 1906. Over $150,000 was spent in developing the property, and then all work was stopped by an order from the government.

Carrolltown, Penn.—The Jacob C. Steinman Estate has reecntly closed a deal for the purchase of coal under 145 acres of the Henry Shaffer farm in Conemaugh Township. This tract adjoins the present coal holdings of the Steinman Estate. It will be mined from the Southport operation, and will not necessitate a new opening. The consideration was approximately $28,000.

Juneau, Alaska—After five years, the government has decided to drop the indictments against Cornelius Christopher and George Simmons, who were charged with having attempted to obtain possession of Alaskan coal claims by fraudulent methods. Many others who have been indicted under similar circumstances have been dismissed on the grounds that there was no evidence of fraud.

Greensburg, Penn.—Jos. Owens, W. H. Owens and J. & C. Owens, residents of Westmoreland County, have sold to Thomas Bowman, of Manchester, England, three tracts of coal land in Allegheny township for a consideration of $11,000. The deed dated Apr. 28 gives the purchaser only the right to mine the vein termed the Upper Freeport and reserves all lower measures to the parties of the first part.

Columbus, Ohio—The Chesapeake & Ohio directors have approved the trackage agreement with the Norfolk & Western by which the Chesapeake & Ohio will use 62 miles of track between Waverly and Columbus in connection with the Chesapeake & Ohio's recently announced plan to build a line to connect with the Hocking Valley. Work has been started on a 28-mile section of track to run from Sciotoville to Waverly.

Johnstown, Penn.—For the first time since the early part of November, 1913, the Cambria Steel Co. will be operating eight blast furnaces in the immediate future. Two additional openhearth furnaces are being heated up at the Franklin plant, making a total of 27 openhearth furnaces to be placed in use. Many additional men are being given work but the labor situation is not expected to regain its normal conditions for some time to come.

Red Lodge, Mont.—The case of the Bear Creek Coal Co. and the Montana Coal & Iron Co. against the Montana, Wyoming & Southern R.R., which was heard before the state railroad commission last December has been settled in favor of the defendant. The coal companies were attempting to secure a combination of rates that would permit them to compete with the mines of the Roundup Coal Co. along the right-of-way of the Chicago, Milwaukee & St. Paul R.R.

Baltimore, Md.—On May 25, nine vessels were in line at the coal piers of the Baltimore & Ohio R.R. at Curtis Bay, and at those of the Western Maryland Ry. at Port Covington either being loaded or waiting their turn to get under the chutes to take cargo. This is as large a number as has gathered here in one day for some time. It shows that the work of exporting coal is fast growing and bears out the prediction that there would be an active foreign demand for American fuel.

Uniontown, Penn.—Deeds conveying the coal underlying 36 lots in Mount Pleasant, Westmoreland County, have been recorded at Greensburg. James A. Braddock, of Mt. Pleasant, bought this coal and transferred it to the Frick interests, receiving in return an equal amount from the Frick field adjoining his Franklin plant in Fayette County. While the majority of sellers are private property owners the transfer also includes the coal under the Mt. Pleasant Seminary and the Baptist church.

Connellsville, Penn.—It has been announced that the experiments of the H. C. Frick Coke Co. looking toward the profitable extraction of sulphuric acid and iron oxide from the mine water at Davidson will be discontinued because of the cost of operation, this being greater than the value of the product secured. The experiments demonstrated that these products might be extracted from the mine water, but the cost of operation was such as to render the scheme commercially impracticable.

Washington, D. C.—The Supreme Court on June 1 affirmed the Interstate Commerce Commission's order reducing coal rates to Nashville, Tenn., and giving switching privileges to the Louisville & Nashville R.R.'s competitors. The commission ordered the Louisville & Nashville and the Nashville, Chattanooga & St. Louis railroads' coal rates reduced to 20c. per ton from western Kentucky, eastern Tennessee and Alabama. It held these rates were unreasonable as compared with those given Cincinnati and other cities.

Pittsburgh, Penn.—J. A. Paisley, of Cleveland, recently entered a suit against the Rail & River Coal Co. asking $339,000 commission fee from the defendant company and its officers. He alleges that he was retained to sell properties of the Rail & River Coal Co. and to receive therefor a commission of 10 per cent. That the properties were sold to the Grand Trunk Development Co., of Toronto, Canada, for $3,390,000 and the sale was made through Charles M. Hayes, of Toronto, Canada. This case was tried once before, but the jury disagreed.

Uniontown, Penn.—Announcement was made May 28 by George Whyel, president of the Consolidated Connellsville Coke Co. that a shipment of 4500 tons of Fayette County coke would be made to Argentina for experimental purposes in an effort to find a substitute for the German byproduct coke that has been used exclusively in South America. Should the test shipment of coke prove satisfactory, it is certain that the Fayette County coke region will feel the effects of a more steady and permanent demand for its staple product. The shipment will be made from Baltimore.

Spokane, Wash.—The public service commission has accepted a compromise in coal rates in Washington. In connection with Roslyn coal rate to Spokane being reduced to $2.25 a ton, a movement is on foot to have still maintained the 35c. differential rate from the Crows Nest Pass coal field which includes the Crows Nest, Corbin and Bellview mines. The present rate of these Canadian coals is $2.15 and the former rate on Roslyn coal was $2.50, thus if a 35c. differential rate is maintained by the Canadian mines, the rate will be $1.90 a ton to Spokane. The matter has been taken up with the railroad companies.

Brookville, Penn.—The Dilltown Smokeless Coal Mining Co. has filed complaint with the Interstate Commerce Commission against the Pennsylvania R.R. and the Buffalo, Rochester & Pittsburgh R.R. Co., charging discrimination against the Dilltown company in favor of its competitors. It is alleged that the Buffalo, Rochester & Pittsburgh road furnishes other coal companies with plenty of empty cars while it refuses to give to the Dilltown company enough for its purpose. It is charged that the Pennsylvania exacts a rate of $1.25 a ton from the Dilltown company on shipments to Buffalo, N. Y., and carries the coal of its competitors for $1.10. These discriminations the commission is asked to stop.

Toronto, Canada—The application of the railway companies to the Canadian Railway Commission for permission to increase the freight charges on coal 10 cents per ton is now being considered by the Commission. A hearing was given at Ottawa recently to the representatives of the Toronto coal dealers and the Consumer's Gas Co., who presented arguments against the proposed increase. Figures were presented showing that at present it costs much more for freight and customs duty on a ton of bituminous coal f.o.b., Toronto, than the actual cost at the mines. It was stated that bituminous coal can be bought at the Pennsylvania mines a $1.30 per ton. The freight rates from the mines to the International Bridge at Niagara Falls is $1.25 and from that point to Toronto 60 cents per ton. The ordinary customs duty is 53 cents and the war tax 10 cents making the total cost at Toronto $3.78. It was contended on behalf of the railways that latterly their expenses had increased enormously but that their revenue was not increasing proportionately. The case is still pending.

Coal Trade Reviews

General Review

Anthracite continues to slow down and price cutting becoming more general. Bituminous agencies are still optimistic though concern is felt over the prevailing low prices.

The current season has witnessed a large falling off in the number of anthracite consumers stocking up at the minimum circular of the year. The difficulty in making satisfactory collections, because of the uncertainty in financial circles is largely responsible for this, the retailers hesitating to push for business on which payments are liable to be long delayed. The market is also badly unsettled because of the low prices, there still being persistent rumors that the large companies are participating in the price cutting, some having openly quoted pea coal at 50c. off the circular. A compensating feature of the situation is the undoubted fact that there must be a tremendous rush in the fall business in order to overcome the deficiency now being developed. While shipments up the Lakes have been maintained in a normal volume so far, the movement out from the Upper Lake ports has slowed down and coal is beginning to back up into the shipping ports at Buffalo.

Aside from the heavy movement in the export trade, the bituminous market has seldom ever been so devoid of interest. The large off-shore business has stimulated some slight interest among local buyers and shippers are confident of a firmer market before very long, while there are some large orders coming up for consideration during the current month. On the other hand there is some concern being expressed over the trend of the market, due to the low prices being quoted on some large city contracts, which have been closed at the minimum figures for a number of years.

An occasional temporary spurt creates renewed hope among Pittsburgh shippers, and the situation averages up as monotonously dull as ever, although the fact that the trade has held its own since the resumption of mining in Ohio is an encouraging feature. The possibility of a labor shortage, due to the extremely light immigration since the inception of the European war, combined with an abnormal exodus of miners leaving to participate in the trouble, is being used to boost the market, but well-informed observers see little hopes for any relief in this direction, so long as the demand is so restricted. Regular circulars are generally maintained, but as is always the case in a dull market, there is more price cutting than normally. No important movement in the Lake trade is anticipated before July. The exceedingly low prices prevailing in the open market are still interfering with negotiations on new contracts in Ohio, and with one of the most important companies announcing it will not start Lake shipping before July 1, the outlook is still discouraging.

One of the most encouraging features in the Middle Western situation is the fact that shippers are effectively curtailing production so that the market is free of demurrage coal. Agencies continue optimistic regarding the future, but the current movement is light, while the situation is further aggravated by poor collections. The recent cool weather has increased the demand slightly and helped mine operations.

BUSINESS OPINIONS

Boston News Bureau—Every day seems to increase confidence in the financial and commercial position of the United States. This is the result of the European war. It looks now as if we should have a foreign trade balance something like $1,000,000,000 June 30, the close of the fiscal year. Against this, including interest on American securities, tourist expenses, freight charges and all other possible offsets, there will remain a net trade balance of fully $500,000,000. The brightest minds see in our remarkable position a situation calculated to arouse the greatest amount of courage and enthusiasm. It must stimulate the initiative. The fact is that this country is making such enormous strides that even our troubles with Germany and Mexico cannot absolutely check the benefit.

Bradstreets—Cool, wet weather over a wide area has reduced retail trade in seasonable goods; pending international political matters, though not given much prominence, make for caution in financial circles, and winter wheat and corn crop reports are not so glowing as heretofore. On the other hand, the larger distributers of staple articles seem to be doing quite well; mail-order trade is large; manufacturing certainly is more active; complaints of a scarcity of skilled mechanics are numerous; business in war materials is rushing; ship-building yards are filled with orders; railway traffic is heavier.

Iron and Steel—The record prices obtained for spelter have made startling changes in the prices of finished galvanized products. An increase of $10 per ton has been made in galvanized pipe and an increase of $5 in galvanized sheets follows one of $7 a ton less than a month ago. Foreign business continues large but there is getting to be more and more difficulty in securing freight room. At the meeting of the Iron and Steel Institute held in New York last week the leaders of the industry spoke enthusiastically about the prospects for business. Rail orders have been larger but the 135,000-ton order of the Pennsylvania has not yet been placed. Sales of steel making iron have been made in Pittsburgh at slightly higher prices. The steel industry as a whole is operated at 75% of the maximum capacity.

Dun's—Steadily expanding industrial operations—due mainly, but not wholly, to the big war demands—have a stimulating effect generally, although the many uncertainties of the foreign situation make for caution everywhere. Hesitancy in new enterprise, however, does not imply any lack of confidence in the future, but rather a disposition to await further developments in regard to this country's diplomatic relations with Germany.

Marshall Field & Co.—Despite unseasonable weather for dry goods distribution, current wholesale shipments are about the same as a year ago. Sales by our traveling organization show an increase over those of the corresponding period last spring. The continued disposition of retailers to anticipate their future sales requirements is resulting in a good volume of fall business. The daily average of buyers in the market has been considerably larger than last year.

Engineering News—The ability of business to withstand the severe shocks which occurred during May, indicates clearly the firm foundation which underlies the general structure. Although the newspapers in the United States are calling attention to the dire possibilities that might result from international complications, there has been no postponement of business already under way—no engineering contracts, as far as can be learned, have been postponed for this reason—and while there was a temporary halt in the volume of new business, this has almost all disappeared and increased activity is making steady headway. As far as the general business situation is concerned, it was better on June 1 than on May 1. More men are at work, more projects are planned, and there is more confidence that business this year will show a steady gain. Contracts for certain commodities have been made for delivery well into 1916, and the business world is taking a long look ahead.

ATLANTIC SEABOARD

BOSTON

Buyers show more interest in market. Export demand tends to harden prices. Less "market coal" and better conditions on cars. Georges Creek in good position. Anthracite shippers have a supply of June orders.

Bituminous—All the agencies are still talking confidently of a firmer market and there is more interest on the part of buyers than for two months. There has not been any buying of consequence but there are likely to be some good-sized orders placed during the current month. Meanwhile, the export business is helping to keep down accumulations at the Hampton Roads and Baltimore piers. The latter port is having its full share of the off-shore business and when clearances are too slow for coastwise boats the shift is made to

Norfolk and Newport News. In this way, all interests are deriving some benefit from the foreign demand. Prices are not changed from last week but there is a little more life to the market, $2.75@2.80 is now about the lowest price at which standard Pocahontas and New River can be had.

"Market cargoes" are less in evidence here and the on-car price is somewhat firmer; $3.70@3.75 is now the ruling price on small lots for delivery inland. In some quarters there is beginning to be some concern over the possible trend of the market next winter. This is particularly true in the local city market where prices have lately been the lowest in years on account of certain local complications.

The output of Georges Creek is still being confined largely to Baltimore for foreign tonnage but small consignments are coming forward via Philadelphia and New York. There is practically none of this grade available for spot shipment and each cargo arriving here has a consignee awaiting it.

There is a slight improvement noticed in the demand for the better Pennsylvania grades, due in large part to the better situation on the Southern coals. No strengthening in prices is apparent as yet but as the market at Hampton Roads gets firmer there is naturally more interest in the Cambrias and Somersets that compete under such conditions.

Water Freights have so far shown no firmer tendency; it is easy to charter at 75c. Hampton Roads to Boston, on barges 1500 tons and upwards. On Long Island Sound the minimum rate of 40c. still prevails for New York loading.

Anthracite—The curtailment is showing results. Several of the companies have carried orders over into June. While barges are not all in use there is a fairly constant movement, especially from Philadelphia. Some of the smaller shippers are just now clearing cargoes on which there was some assurance of April loading. Dock screenings continue in short supply but steam sizes are everywhere available for spot shipment.

Current quotations on bituminous at wholesale are about as follows:

	Clearfields	Cambrias Somersets	Georges Creek	Pocahontas New River
Mines*	$0.85@1.40	$1.20@1.60	$1.67@1.77	
Philadelphia*	2.10@2.65	2.45@2.85	2.92@3.02	
New York*	2.40@2.95	2.75@3.15	3.22@3.32	
Baltimore*			2.85@2.95	
Hampton Roads*				$2.75@2.85
Boston†				3.70@3.78
Providence†				3.60@3.73

* F.o.b. †On cars.

PHILADELPHIA

Anthracite very dull over the month end. Mining operations restricted and trade badly unsettled. Price cutting spreading to the leading companies.

Anthracite—The last week of May opened with little prospect of increased tonnage. However, a cool spell unprecedented in the annals of the weather bureau stimulated a few orders. Outside of this the trade shows a tendency to lag more than is usual even at this dull period of the year. Many of the collieries continue on short time and the indications are that the working schedules will soon be even more restricted.

Retail dealers complain of poor collections, which has resulted in their not pushing sales of domestic sizes for delivery at this time. The market continues badly unsettled by the low prices prevailing; it is even being suggested that some companies, long known for their rigid adherence to the regular circular, have deviated from their usual course in this respect.

Retail dealers are strongly averse to stocking up at the low prices and many of them openly state they have good reason to believe they will be able to buy two or three months from now at prices as low as the present and possibly lower.

Stove coal seems to be in the most active demand. Broken is well taken care of, as most of this size is sold on contract to large consumers such as gas companies, iron manufacturers, etc., and it is feared in some quarters that it will be very difficult for some operators to fill their contract orders on this size owing to restricted mining. The demand for egg is weak, while chestnut, along with pea and the other small sizes, are going begging. The large companies are asking $2 for pea although the circular price is $2.50, but the individuals are making sales at 15c. to 25c. under the $2 figure, and it is noted in at least one instance where pea has sold for as low as $1.60.

Considerable interest is centered this week on the bids for supplying coal to the public schools; bids are requested on about 37,000 tons of pea and 19,000 tons of prepared sizes. The price at which this coal is taken is always interesting and it is feared in some quarters that certain dealers who are becoming especially noted for low prices, anticipating a particularly dull summer, will take the business without profit, being content with a hauling charge to keep their equipment in action. There was also a rumor abroad that some of the large mining companies would bid on the business direct, as was their custom some years ago, but it is not likely that this will eventuate.

The prices for June have just been issued and there will be the customary advance of 10c. per ton on the prepared sizes, which makes the prices for delivery this month as follows:

	Line and City	Tide
Broken	$3.20	$4.45
Egg	3.45	4.70
Stove	3.70	4.70
Nut	3.85	4.95

NEW YORK

Some accumulation at New York Harbor and bituminous market maintained with difficulty. Anthracite dealers stocked up and mine operations much restricted. No improvement anticipated before fall.

Bituminous—Increased demands by contract holders has aided the soft coal situation materially and conditions are better than in some time. There has been a slight improvement over last week, much of which is attributed to the demands on American manufacturers from the countries engaged in the European struggle. A stronger market is looked for with better prices.

While operators are endeavoring to keep shipments within the consumption, the docks in New York harbor continue to be well stocked, but the surplus coal has not been sufficient to cause any serious trouble. The mines in the Central Pennsylvania and Pittsburgh districts are working a trifle better. Operators in the southern West Virginia and Kentucky regions are experiencing some labor trouble. Car shortages continue on some of the railroads but are not serious enough to cause any extended trouble. The bunkering business has improved some while shipments to New England points have increased.

Demurrage coal is scarce. The demand for spot coals has not been active. Some job lots of good Pennsylvania coals have gone at $2.40 to $2.45.

The export demand continues to be the feature of the market. With inquiries increasing shippers are having trouble in getting bottoms. Few boats are to be had and rates have stiffened. An inquiry has come from Spanish interests for 100,000 tons, and a crucible company in Italy is reported to be in the market for American coals, willing to take a few cargoes on trial. It is also stated that the Swedish railways have about closed negotiations for 300,000 tons at an f.o.b. rate.

Quotations on the various grades are as follows:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein	$3.30@3.40	$3.30@3.40	$3.30@3.40	$1.75@1.85
Georges Creek Tyson	3.00@3.10	3.00@3.10	3.00@3.10	1.45@1.55
Clearfield:				
Medium	2.65@2.80	2.55@2.65		1.10@1.25
Ordinary	2.55@2.60	2.55@2.60		1.00@1.10
Broad Top Mountain				1.10@1.45
Cambria County:				
South Forks	2.90@3.05			1.35@1.50
Nanty Glo	2.75@2.80			1.20@1.25
Barnesboro	2.65@2.70			1.10@1.15
Somerset County:				
Quemahoning		2.75@2.85	2.70@2.85	1.20@1.30
Medium	2.65@2.70	2.60@2.65	2.60@2.65	1.10@1.15
Latrobe	2.45@2.55			0.90@1.00
Greensburg	2.75@2.80			1.10@1.15
Westmoreland	2.95@3.20			1.15@1.40
West Virginia Fairmont		2.60@2.70	2.60@2.70	0.80@0.90
Fairmont mine-run		2.50@2.60	2.50@2.60	0.70@0.80
Steam		2.45@2.50	2.45@2.50	0.90@0.95
Western Maryland		2.35@2.45	2.35@2.45	0.80@0.90

Anthracite—The anthracite coal market shows no improvement. Demand has fallen off and no betterment is looked for until fall. Most dealers are stocked up and operations continue slow. Many of the mines are not working more than half time while others are endeavoring to do a trifle better. Advance estimates for May indicate a falling off of about a quarter of a million tons from the shipments of May, 1914.

Individual operators are curtailing their production and it is probable that they will endeavor to strengthen the market by keeping stocks down. Some of their coals were quoted at from 30 to 40c. below companies' circular, but even at those figures there was no rush of buyers. Some of the larger sizes are still quoted at less than April circular.

Nut coal is longest with some shippers and short with others. Stove is generally bringing the full circular. Line trade for these sizes is quiet. The weakness in the steam coals has not improved. Prices remain about the same as last week, with pea coal quoted in odd lots at about $2.75 f.o.b. Buckwheats are in heavy supply with No. 2 in better condition than the other sizes.

Coal Trade Reviews

General Review

Anthracite continues to slow down and price cutting becoming more general. Bituminous agencies are still optimistic though concern is felt over the prevailing low prices.

The current season has witnessed a large falling off in the number of anthracite consumers stocking up at the minimum circular of the year. The difficulty in making satisfactory collections, because of the uncertainty in financial circles is largely responsible for this, the retailers hesitating to push for business on which payments are liable to be long delayed. The market is also badly unsettled because of the low prices, there still being persistent rumors that the large companies are participating in the price cutting, some having openly quoted pea coal at 50c. off the circular. A compensating feature of the situation is the undoubted fact that there must be a tremendous rush in the fall business in order to overcome the deficiency now being developed. While shipments up the Lakes have been maintained in a normal volume so far, the movement out from the Upper Lake ports has slowed down and coal is beginning to back up into the shipping ports at Buffalo.

Aside from the heavy movement in the export trade, the bituminous market has seldom ever been so devoid of interest. The large off-shore business has stimulated some slight interest among local buyers and shippers are confident of a firmer market before very long, while there are some large orders coming up for consideration during the current month. On the other hand there is some concern being expressed over the trend of the market, due to the low prices being quoted on some large city contracts, which have been closed at the minimum figures for a number of years.

An occasional temporary spurt creates renewed hope among Pittsburgh shippers, and the situation averages up as monotonously dull as ever, although the fact that the trade has held its own since the resumption of mining in Ohio is an encouraging feature. The possibility of a labor shortage, due to the extremely light immigration since the inception of the European war, combined with an abnormal exodus of miners leaving to participate in the trouble, is being used to boost the market, but well-informed observers see little hopes for any relief in this direction, so long as the demand is so restricted. Regular circulars are generally maintained, but as is always the case in a dull market, there is more price cutting than normally. No important movement in the Lake trade is anticipated before July. The exceedingly low prices prevailing in the open market are still interfering with negotiations on new contracts in Ohio, and with one of the most important companies announcing it will not start Lake shipping before July 1, the outlook is still discouraging.

One of the most encouraging features in the Middle Western situation is the fact that shippers are effectively curtailing production so that the market is free of demurrage coal. Agencies continue optimistic regarding the future, but the current movement is light, while the situation is further aggravated by poor collections. The recent cool weather has increased the demand slightly and helped mine operations.

BUSINESS OPINIONS

Boston News Bureau—Every day seems to increase confidence in the financial and commercial position of the United States. This is the result of the European war. It looks now as if we should have a foreign trade balance something like $1,000,000,000 June 30, the close of the fiscal year. Against this, including interest on American securities, tourist expenses, freight charges and all other possible offsets, there will remain a net trade balance of fully $500,000,000. The brightest minds see in our remarkable position a situation calculated to arouse the greatest amount of courage and enthusiasm. It must stimulate the initiative. The fact is that this country is making such enormous strides that even our troubles with Germany and Mexico cannot absolutely check the benefit.

Bradstreets—Cool, wet weather over a wide area has reduced retail trade in seasonable goods; pending international political matters, though not given much prominence, make for caution in financial circles, and winter wheat and corn crop reports are not so glowing as heretofore. On the other hand, the larger distributers of staple articles seem to be doing quite well; mail-order trade is large; manufacturing certainly is more active; complaints of a scarcity of skilled mechanics are numerous; business in war materials is rushing; ship-building yards are filled with orders; railway traffic is heavier.

Iron and Steel—The record prices obtained for spelter have made startling changes in the prices of finished galvanized products. An increase of $10 per ton has been made in galvanized pipe and an increase of $5 in galvanized sheets follows one of $7 a ton less than a month ago. Foreign business continues large but there is getting to be more and more difficulty in securing freight room. At the meeting of the Iron and Steel Institute held in New York last week the leaders of the industry spoke enthusiastically about the prospects for business. Rail orders have been larger but the 135,000-ton order of the Pennsylvania has not yet been placed. Sales of steel making iron have been made in Pittsburgh at slightly higher prices. The steel industry as a whole is operated at 75% of the maximum capacity.

Dun's—Steadily expanding industrial operations—due mainly, but not wholly, to the big war demands—have a stimulating effect generally, although the many uncertainties of the foreign situation make for caution everywhere. Hesitancy in new enterprise, however, does not imply any lack of confidence in the future, but rather a disposition to await further developments in regard to this country's diplomatic relations with Germany.

Marshall Field & Co.—Despite unseasonable weather for dry goods distribution, current wholesale shipments are about the same as a year ago. Sales by our traveling organization show an increase over those of the corresponding period last spring. The continued disposition of retailers to anticipate their future sales requirements is resulting in a good volume of fall business. The daily average of buyers in the market has been considerably larger than last year.

Engineering News—The ability of business to withstand the severe shocks which occurred during May, indicates clearly the firm foundation which underlies the general structure. Although the newspapers in the United States are calling attention to the dire possibilities that might result from international complications, there has been no postponement of business already under way—no engineering contracts, as far as can be learned, have been postponed for this reason—and while there was a temporary halt in the volume of new business, this has almost all disappeared and increased activity is making steady headway. As far as the general business situation is concerned, it was better on June 1 than on May 1. More men are at work, more projects are planned, and there is more confidence that business this year will show a steady gain. Contracts for certain commodities have been made for delivery well into 1916, and the business world is taking a long look ahead.

ATLANTIC SEABOARD

BOSTON

Buyers show more interest in market. Export demand tends to harden prices. Less "market coal" and better conditions on cars. Georges Creek in good position. Anthracite shippers have a supply of June orders.

Bituminous—All the agencies are still talking confidently of a firmer market and there is more interest on the part of buyers than for two months. There has not been any buying of consequence but there are likely to be some good-sized orders placed during the current month. Meanwhile, the export business is helping to keep down accumulations at the Hampton Roads and Baltimore piers. The latter port is having its full share of the off-shore business and when clearances are too slow for coastwise boats the shift is made to

Norfolk and Newport News. In this way, all interests are deriving some benefit from the foreign demand. Prices are not changed from last week but there is a little more life to the market, $2.75@2.80 is now about the lowest price at which standard Pocahontas and New River can be had.

"Market cargoes" are less in evidence here and the on-car price is somewhat firmer; $3.70@3.75 is now the ruling price on small lots for delivery inland. In some quarters there is beginning to be some concern over the possible trend of the market next winter. This is particularly true in the local city market where prices have lately been the lowest in years on account of certain local complications.

The output of Georges Creek is still being confined largely to Baltimore for foreign tonnage but small consignments are coming forward via Philadelphia and New York. There is practically none of this grade available for spot shipment and each cargo arriving here has a consignee awaiting it.

There is a slight improvement noticed in the demand for the better Pennsylvania grades, due in large part to the better situation on the Southern coals. No strengthening in prices is apparent as yet but as the market at Hampton Roads gets firmer there is naturally more interest in the Cambrias and Somersets that compete under such conditions.

Water Freights have so far shown no firmer tendency; it is easy to charter at 75c. Hampton Roads to Boston, on barges 1500 tons and upwards. On Long Island Sound the minimum rate of 40c. still prevails for New York loading.

Anthracite—The curtailment is showing results. Several of the companies have carried orders over into June. While barges are not all in use there is a fairly constant movement, especially from Philadelphia. Some of the smaller shippers are just now clearing cargoes on which there was some assurance of April loading. Dock screenings continue in short supply but steam sizes are everywhere available for spot shipment.

Current quotations on bituminous at wholesale are about as follows:

	Clearfields	Cambrias Somersets	Georges Creek	Pocahontas New River
Mines*	$0.85@1.40	$1.20@1.60	$1.67@1.77	
Philadelphia*	2.10@2.65	2.45@2.85	2.92@3.02	
New York*	2.40@2.95	2.75@3.15	3.22@3.32	
Baltimore*			2.85@2.95	
Hampton Roads*				$2.75@2.85
Boston†				3.70@3.78
Providence†				3.60@3.73

* F.o.b. †On cars.

PHILADELPHIA

Anthracite very dull over the month end. Mining operations restricted and trade badly unsettled. Price cutting spreading to the leading companies.

Anthracite—The last week of May opened with little prospect of increased tonnage. However, a cool spell unprecedented in the annals of the weather bureau stimulated a few orders. Outside of this the trade shows a tendency to lag more than is usual even at this dull period of the year. Many of the collieries continue on short time and the indications are that the working schedules will soon be even more restricted.

Retail dealers complain of poor collections, which has resulted in their not pushing sales of domestic sizes for delivery at this time. The market continues badly unsettled by the low prices prevailing; it is even being suggested that some companies, long known for their rigid adherence to the regular circular, have deviated from their usual course in this respect.

Retail dealers are strongly averse to stocking up at the low prices and many of them openly state they have good reason to believe they will be able to buy two or three months from now at prices as low as the present and possibly lower.

Stove coal seems to be in the most active demand. Broken is well taken care of, as most of this size is sold on contract to large consumers such as gas companies, iron manufacturers, etc., and it is feared in some quarters that it will be very difficult for some operators to fill their contract orders on this size owing to restricted mining. The demand for egg is weak, while chestnut, along with pea and the other small sizes, are going begging. The large companies are asking $2 for pea although the circular price is $2.50, but the individuals are making sales at 15c. to 25c. under the $2 figure, and it is noted in at least one instance where pea has sold for as low as $1.60.

Considerable interest is centered this week on the bids for supplying coal to the public schools; bids are requested on about 37,000 tons of pea and 19,000 tons of prepared sizes. The price at which this coal is taken is always interesting and it is feared in some quarters that certain dealers who are becoming especially noted for low prices, anticipating a particularly dull summer, will take the business without profit, being content with a hauling charge to keep their equipment in action. There was also a rumor abroad that some of the large mining companies would bid on the business direct, as was their custom some years ago, but it is not likely that this will eventuate.

The prices for June have just been issued and there will be the customary advance of 10c. per ton on the prepared sizes, which makes the prices for delivery this month as follows:

	Line and City	Tide
Broken	$3.20	$4.45
Egg	3.45	4.70
Stove	3.70	4.70
Nut	3.85	4.95

NEW YORK

Some accumulation at New York Harbor and bituminous market maintained with difficulty. Anthracite dealers stocked up and mine operations much restricted. No improvement anticipated before fall.

Bituminous—Increased demands by contract holders has aided the soft coal situation materially and conditions are better than in some time. There has been a slight improvement over last week, much of which is attributed to the demands on American manufacturers from the countries engaged in the European struggle. A stronger market is looked for with better prices.

While operators are endeavoring to keep shipments within the consumption, the docks in New York harbor continue to be well stocked, but the surplus coal has not been sufficient to cause any serious trouble. The mines in the Central Pennsylvania and Pittsburgh districts are working a trifle better. Operators in the southern West Virginia and Kentucky regions are experiencing some labor trouble. Car shortages continue on some of the railroads but are not serious enough to cause any extended trouble. The bunkering business has improved some while shipments to New England points have increased.

Demurrage coal is scarce. The demand for spot coals has not been active. Some job lots of good Pennsylvania coals have gone at $2.40 to $2.45.

The export demand continues to be the feature of the market. With inquiries increasing shippers are having trouble in getting bottoms. Few boats are to be had and rates have stiffened. An inquiry has come from Spanish interests for 100,000 tons, and a crucible company in Italy is reported to be in the market for American coals, willing to take a few cargoes on trial. It is also stated that the Swedish railways have about closed negotiations for 300,000 tons at an f.o.b. rate.

Quotations on the various grades are as follows:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein	$3.30@3.40	$3.30@3.40	$3.30@3.40	$1.75@1.85
Georges Creek Tyson	3.00@3.10	3.00@3.10	3.00@3.10	1.45@1.55
Clearfield:				
Medium	2.65@2.80	2.55@2.65		1.10@1.25
Ordinary	2.55@2.60	2.55@2.60		1.00@1.10
Broad Top Mountain				1.10@1.45
Cambria County:				
South Forks	2.90@3.05			1.35@1.50
Nanty Glo	2.75@2.80			1.20@1.25
Barnesboro	2.65@2.70			1.10@1.15
Somerset County:				
Quemahoning		2.70@2.85	2.70@2.85	1.20@1.30
Medium	2.65@2.70	2.60@2.65	2.60@2.65	1.10@1.15
Latrobe	2.45@2.75			0.90@1.00
Greensburg	2.75@2.80			1.10@1.15
Westmoreland	2.95@3.20			1.15@1.40
West Virginia Fairmont		2.60@2.70	2.60@2.70	0.80@0.90
Fairmont mine-run		2.50@2.60	2.50@2.60	0.76@0.80
Steam		2.45@2.50	2.45@2.50	0.90@0.95
Western Maryland		2.35@2.45	2.35@2.45	0.80@0.90

Anthracite—The anthracite coal market shows no improvement. Demand has fallen off and no betterment is looked for until fall. Most dealers are stocked up and operations continue slow. Many of the mines are not working more than half time while others are endeavoring to do a trifle better. Advance estimates for May indicate a falling off of about a quarter of a million tons from the shipments of May, 1914.

Individual operators are curtailing their production and it is probable that they will endeavor to strengthen the market by keeping stocks down. Some of their coals were quoted at from 30 to 40c. below companies' circular, but even at those figures there was no rush of buyers. Some of the larger sizes are still quoted at less than April circular.

Nut coal is longest with some shippers and short with others. Stove is generally bringing the full circular. Line trade for these sizes is quiet. The weakness in the steam coals has not improved. Prices remain about the same as last week, with pea coal quoted in odd lots at about $2.75 f.o.b. Buckwheats are in heavy supply with No. 2 in better condition than the other sizes.

Quotations are as follows:

	Lower Ports		Upper Ports	
	Circular	Individual	Circular	Individual
Broken	$4.75		$4.80	
Egg	5.00	$4.80	5.05	$4.85
Stove	5.00	4.80	5.05	4.85
Chestnut	5.25	5.00	5.30	5.05
Pea	3.35@3.50	3.10@3.35	3.40@3.55	3.15@3.40
Buckwheat	2.50@2.75	2.25@2.50	2.55@2.80	2.30@2.55
Rice	2.00@2.25	1.90@2.10	2.05@2.30	2.00@2.25
Barley	1.75@2.00	1.60@1.75	1.80@2.05	1.85@2.10

OCEAN FREIGHTS

Freight conditions are practically the same as a week ago and although numerous steamers have been chartered during the interval for export coal, the freight rates paid were about those quoted in our last report. We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana	$2.00@2.25	Bermuda	**$3.50@3.75**
Cardenas or Sagua	3.00@3.25	Vera Cruz	**3.50**
Cienfuegos	2.75@3.00	Tampico	**3.50**
Port au Spain, Trinidad	3.75@4.00	Rio	8.64@8.76
St. Lucia	3.50@3.75	Santos*	8.88@9.12
St. Thomas	**3.25**	Montevideo	**7.92**
Barbados	3.75@4.00	Buenos Aires or La Plata	8.04@8.16
Kingston	2.75@3.00	Rosario	8.40@8.64
Curacao	3.75@4.00	West Coast of Italy	**10.80**
Santiago	2.75@3.00	Spain**	9.60@10.20
Guantanamo	2.75@3.00	Valparaiso or Callao	**7.20**
Demerara	5.00@5.50	Marseilles	9.60@10.20

Note—Rates noted in **bold face** type are only approximate.
*Consignees paying dock dues. **Spanish dues for account.
W. W. Battie & Co.'s Coal Trade Freight Report.

HAMPTON ROADS

Export movement lighter than anticipated. Prices well maintained. Monthly tonnage large.

Coal shipments foreign have not been so heavy as was anticipated, though the movement coastwise has been fair. The number of bunker steamers calling at Hampton Roads has been normal and in a majority of cases they have taken exceptionally large quantities. The accumulation of coal at Tidewater is still somewhat large but there is quite a large fleet of barges and schooners due which should considerably reduce the tonnage.

Prices on New River and Pocahontas are practically the same as they have been for some weeks although there may be a few cargoes which have been sold at a concession. The government has taken coal during the week some of which was loaded for the Naval Station at San Francisco.

The indications are that the dumpings for Hampton Roads ports will not be so heavy as was anticipated during the first half of the month but in any case it is expected they will be close to 1,250,000 tons.

The following vessels have cleared from Hampton Roads during the past week:

Norfolk

Vessel	Destination	Tons
August[1]	Genoa	8079
Songa[2]	La Plata	3788
Mariongo Goulandris	Savona	5084
Mar Cor[1]	Genoa	4950
John B. Biemiller	Canary Islands	1542
Dinnamare[1]	Naples	4904
Woudrichem	Buenos Aires	3304
Thorsa[3]	Manzanillo	1447
Frey[1]	Las Palmas	2100
Den of Crombie	Leghorn	7280
Chiswick	Canal Zone	4800
Catherine V. Mills	Fayal	380
Strathalbyn	Dakar	6750

Norfolk

Vessel	Destination	Tons
Antares	Havana	2837
Geo. E. Walcott	Para	2850

Newport News

Vesuvio	Genoa	7200
Harald	Barbados	4500
Adelaide Barbour	San Juan	1788
Exford	Marseilles	7500
Italiana	Genoa	3657

Note—Steamers are indicated by **bold face type**, all others being schooners.
[1] Pocahontas Fuel. [2] Northern Coal Co. [3] Castner, Curran & Bullitt.

Railroad Tonnages—Dumpings over the local piers for the past several weeks were as follows:

Railroad	Week Ending May 1	May 8	May 15	May 22	May 29
Norfolk & Western	.....	208,179	151,113	162,921	146,462
Chesapeake & Ohio	60,967[1]	88,609[2]	80,045	84,286	83,678
Virginian	65,099	45,116	57,903	39,431	61,688
		341,904	289,061	286,638	291,828

[1] Week ending Friday. [2] Nine days.

BALTIMORE

Anthracite consumers fail to buy at the low-price period. Bituminous exports continue heavy, and May will break all records. Other business continues quiet.

There has been a large falling off in the number of consumers to take advantage of the low schedule of anthracite prices. Buying is confined almost entirely to immediate needs only. Scarcity of money seems to be the chief trouble, although collections have not been particularly bad.

Low grade Pennsylvania coals are offering at 95c. and $1, while the less desirable steam coals of Maryland and West Virginia bring around 80 and 85c. at the mines to the trade. Best coals are being held closer, as they are more fully covered by contracts. Medium grade fuels are offering at from $1.10 to $1.20, with best coals at $1.25 to $1.30.

The following charters were announced the past week.

Vessel	Nationality	To	Rate
Wondricken	Dutch	River Plate	**$7.56**
Gledhow	British	River Plate	8.76
Filomachi	Greek	West Coast of Italy	
Honiton	British	River Plate	
Julia Park	British	River Plate	8.16
Adriatic	British	West Coast of Italy	**10.80**
Ambon	Dutch	Alexandria, Egypt	
Dalton	British	River Plate	
Lalnishen	British	West Coast of Italy	
Nina	Italian	West Coast of Italy	
Good Hope	British	West Coast of South America	
Antoinette Acme	Italian	Genoa	
Fairport	British	Genoa	
New Sweden	Swedish	Gothenburg	

OCEAN CHARTERS

Coal charters have been reported by the "Journal of Commerce" as follows:

Vessel	Nationality	From	To	Tons	Rate
New Sweden	Swedish	Baltimore	Gothenburg	3287	
Thelma	Norwegian	Newport News	Cardenas	846	
Eleanor A. Percy		Philadelphia	Boston	3062	
Morazan	British	Baltimore	Valparaiso	2213	
Dunachton	British	Baltimore	Montevideo	3311	$8.28
Ontaneda	Spanish	Baltimore	Montevideo	2232	
Aldgate	British	Baltimore	Rio Janeiro	2294	8.88
Styliani Bebis	Greek	Baltimore[1]	Italy[2]	2216	10.80
Wardha	Italian	Baltimore[1]	Tarranto	2426	
Westlands	British	Baltimore	Alexandria	2001	
Moldegaard		Philadelphia	Havana	1788	
Perry Setzer		Baltimore	Mayport	1268	
Dalton	British	Baltimore	River Plate	2263	
Ambon	Dutch	Baltimore	Alexandria	2806	
Kariba	British	Virginia	Buenos Aires	2350	8.04
Warrior	British	Virginia	Buenos Aires	2394	
Honiton	British	Baltimore	River Plate	3011	
Filomachi	Greek	Baltimore	Italy[2]	2146	10.80
Good Hope	British	Baltimore	South America[2]	2308	
Edward H. Cole		Philadelphia	Rio Janeiro	1395	
Florance Creadick		Hampton Roads	Cardenas	657	2.75
Edward H. Blake		New York	Dartmouth, N.S.	484	1.65
Jessie Ashley	British	New York	St. Andrews	122	1.75
Genevieve	British	New York	Dorchester	124	1.75
Ponhook	British	Philadelphia	Liverpool, N.S.	198	
D. W. B.	British	Philadelphia	St. John, N.B.	96	1.50

Note—Steamers are indicated by **bold face type**, all others being schooners.
[1] Or Virginia. [2] West Coast.

LAKE MARKETS

PITTSBURGH

Conditions generally unchanged. Manufacturing demand slightly improved. Operations at 50 to 60% of capacity. No labor shortage feared.

Little, if any, improvement is to be noted in the general coal situation in the Pittsburgh district. Perhaps, however, the trade would be doing well enough to hold its own for the time being, since the general resumption of mining operations in Ohio after the long deadlock. Lake shipments are still far from heavy and not much increase is expected in the near future, though July may see a fairly heavy tonnage. The Lake movement as a whole is practically certain to prove a poor one.

There is no domestic demand to speak of. Railroad requirements have increased slightly, and there has been a barely perceptible increase in the requirements of manufacturing consumers, chiefly in the iron and steel industry. A further improvement in this direction is predicted. Mines continue to operate at an average between 50 and 60% of capacity. While immigration has been extremely light since the war started, and indeed was quite light for a couple of months preceding, there seems to be no possibility of any labor shortage in the coal mining industry in the Pittsburgh district. There is much talk of a prospective shortage in steel mill, blast furnace and coke-oven labor if the trade revives further as is expected.

Mine-run on contracts to Apr. 1 next is largely nominal at $1.15. Free coal is practically unchanged, prices generally being about as follows: Slack, 55@60c.; nut and slack, 90@95c.; nut, 95c.@$1; mine-run, $1@1.05; ¾-in., $1.10@1.15; 1¼-in., $1.20@1.25, per net ton at mine, Pittsburgh district.

BUFFALO

Very little improvement in bituminous and none at all in anthracite. Every prospect of a light summer. Considerable coal here on track. No really good business till manufacturing starts up.

Bituminous—An occasional jobber will report a little better trade, but as a rule it does not hold. The general opinion now is that there will be no stir of any account till midsummer, if then. At the same time there is no real distress

shown anywhere. As is always the case when the volume of business is not satisfactory there is more cutting of prices than there would otherwise be the case but quotations remain at $2.70 for Pittsburgh lump, $2.55 for three-quarter, $2.45 for mine-run and $2.25 for slack. Allegheny Valley sizes are about 25c. lower than Pittsburgh.

Anthracite—The unusual dullness is remarked by everybody. Reports from the Western trade indicate a great part of the coal shipped to that territory this summer will remain on the docks till winter. A liberal amount is moving by Lake, but this is due largely to the difficulties at one dock that has suspended operations once or twice this season by Government order and may be shut down again almost any time on the same account. It is not at all certain that the pace can be maintained, as these shipments are probably more than the Western market will need for the winter. The week's shipments were 96,000 tons.

The local anthracite market is as dull as ever, with no prospect of improvement right away. It appears that the increased amount of independent anthracite in this market has had much to do with the dullness.

COLUMBUS

Domestic and steam business continues quiet and Lake trade is still slow. Difficulty in renewing contracts is still evident.

Operators and jobbers believe that there will be a better demand in the latter part of the year but so far the demand has not come up to expectations.

The domestic trade is still slow but that is expected at this time of the year. Some demand is reported for the fancy grades such as Pocahontas and West Virginia splints. Anthracite is also selling well for this early in the season. Retail prices are generally well maintained at the levels which have prevailed for the past month. On the whole the domestic trade is at a standstill but preparations are being made for a rather active season in July and August. Some demand from the rural districts is expected in the near future.

The steam business is also quiet as manufacturing is still slow. Outside of munitions manufactures, there is only a small demand for steam fuel. Difficulty in renewing contracts is reported on all sides because of the extreme low prices offered in the open market. The railroad demand is not increasing as anticipated.

Lake trade is still slow but it is yet too early for much of a movement towards the Northwest. The Sunday Creek Coal Co. will not start shipments until after July 1. Chartering of boats is slow and charters do not extend for any great length of time. Reports from the Upper Lake ports show a large amount of coal still on the docks.

Some concern is felt over the labor situation in Ohio since the entrance of Italy into the world war. A large number of Italians are leaving for service in the army and it is believed this will have a marked effect on the mining situation in Ohio.

Mining operations are on about the following basis:

District	Week Ended May 15 Per Cent.	May 22 Per Cent.	May 29 Per Cent.
Hocking Valley	25	25	30
Jackson	25	25	20
Pomeroy Bend	50	50	45
Crooksville	25	30	35
Cambridge	35	30	35
Massillon	40	35	35
Eastern Ohio	....	5	15

Prices in the Ohio fields are:

	Hocking Valley	Pomeroy	Kanawha
Rescreened lump	$1.45	$1.50	.....
Inch and a quarter	1.30	1.35	$1.30
Three-quarter inch	1.25	1.30	1.25
Nut	1.15	1.25	1.15
Mine-run	1.05	1.10	1.05
Nut, pea and slack	.70	.75	.65
Coarse slack	.60	.70	.55

TOLEDO

Favorable crop outlook and recent heavy war orders are the features of an otherwise dull market.

Domestic buying is light although aided some by the chilly weather which has prevailed here for the past couple of weeks. There is some demand for threshing coal which will of course increase as the season advances; crops are reported in the best possible condition throughout this section and more than the usual acreage was planted. There is no Pocahontas coal to be had on the local market, especially in the prepared sizes. There is a slight movement of lower grade smokeless coals of which there is a plentiful supply. Pittsburgh No. 8 is not yet much of a factor in the market.

War orders were recently placed in this city amounting to more than a million and a half of dollars, which have forced the enlargement of a couple of local factories and will have a beneficial effect on the market. Cambridge is selling fairly well. Prices are for the most part being well maintained as respects the list although they are at rock bottom. Contracts are still a little slow and the movement of Lake coal continues sluggish. Prospects for a good season later on are considered good and the trade seems content and is doing little worrying.

CLEVELAND

Spot prices rule low and buyers take coal at their own figure. Lake shippers plan to increase the movement this month.

Buyers continue to take advantage of the weak market that continues heavy in spite of the light receipts. Fine coal has sold as low as $1.55, but the market generally rules 5 to 10c. higher. The difference between what jobbers have to pay and the market for spot coal excludes buying for current shipments. Most of the coal coming in is on contract except some coarse coal, which is sent on consignment.

The Lake shippers plan to move a little more coal this month than last. The shipping season will not be normal for two months yet but the movement by that time will be up to last year. The buying for threshing will commence in the Northwest the latter part of this month. Ore shipments are expected to be larger after the middle of the month because freight rates from the ranges back of Duluth-Superior and Two Harbors were reduced 5c. a ton effective June 1. A number of buyers have postponed orders until June 1 for this reason. This will increase the demand for railroad and mining fuel.

Vessels were held over Saturday and Monday to get coal cargoes. Tonnage is exceedingly plentiful and will continue so the next 30 days.

Jobbers are paying the following prices for shipment:

	Pocahontas	Youghiogheny	Bergholz	Fairmont	W. Va. No. 8
Lump	$3.10	.....	.....	.....	.....
Lump, 1½ in.	.....	$2.20@2.25	$2.00	$1.80@1.85	$1.75@1.85
Egg	3.10	.....	.....	.....	.....
Mine run	2.65@2.70	2.10	1.85	1.85@1.90	1.75@1.85
Slack	.....	1.65@1.70	1.60	1.65@1.70	.....

CINCINNATI

Contracting in both steam and domestic coals continues slow and at low prices.

The tendency noticeable to delay buying as long as possible, and then to buy only in small quantities, is still the outstanding feature of the coal market. Instead of taking advantage of the situation to accumulate stocks on very attractive terms, consumers evidently prefer to fill current needs with the cheap spot coal offered, deferring contracting with an evident hope of still lower prices. The Lake movement is not developing as expected, although it is more brisk than at first.

LOUISVILLE

River shipments beginning to arrive but otherwise the trade is devoid of interest.

Nominally the coals for the domestic trade advanced 10c. on June 1, $1.40 for four-inch lump being the base price. Whether this advance will be maintained in actual transactions is generally doubted. Kentucky operators and dealers are looking to the opening of the Lake trade to relieve at least some of the competition from the sections which reach that market. The stocking operations among the retailers are as yet not proceeding in a satisfactory manner. Steam coals show virtually no change.

The first shipments of coal from Pittsburgh since the first of March are now reaching here, the vanguard of some 13 tows, with a total of 244 coal boats and barges laden with nearly a quarter of a million tons. It was estimated in reports from Pittsburgh that three million tons have accumulated in the local pools awaiting a stage of the river which would permit shipments south. The heavy rains of the last two weeks have given this stage, after three months of what was practically drought.

BIRMINGHAM, ALA.

Steam coal shows slight improvement but domestic grades continue very quiet.

The past week has brought no relief for the lump coal situation, the demand being about as near to nothing as it could be. In fact, there is less business being done on this grade than at any time during the past two years. Steam coal is in better shape, though the tonnage moving is not up to normal though it seems to be improving, both locally and on bunker business. Many of the mines which have been closed down for the past six months are now operating, though only about three days a week, while the average throughout the district is from three to four days a week. Coal is being moved down the Warrior River to Mobile and New Orleans since Lock 17 was officially opened on May 13.

COKE

CONNELLSVILLE

Foundry coke moderately active. Furnace coke very dull but with operators holding slightly firmer views. Production and shipments make new records for this movement.

There continues to be a fair volume of contracting for foundry coke, chiefly for the twelvemonth beginning July 1, though some operators are making an effort to limit contracts to six months, expecting better prices later, for delivery after Jan. 1. The regular contract price for standard high grade foundry coke is $2.40, and the leading operators seem to be adhering to this price. Less favorite brands may be had down to $2.20. There is moderate buying of foundry coke for prompt shipment, particularly by those who contemplate the possibility of changing brands with their new contracts. According to grade prompt foundry is bringing $2 to $2.40.

Furnace coke is dull and inactive as to both prompt and contract. It appears that few contracts are to run out June 30, and as yet few idle furnaces contemplate going into blast. The views of operators, however, are a shade stiffer. We quote furnace coke at $1.50@1.55 for spot shipment in small lots, $1.60 to July 1 and $1.75 for shipment to Jan. 1.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended May 22 at 306,691 tons, an increase of 9137 tons, and shipments at 305,047 tons, an increase of 9080 tons. These figures exceed the best previous records on this movement by 7198 tons in the case of production and by 1670 tons in the case of shipments.

Buffalo—The coke trade is as dull as ever, waiting as formerly on the movement of iron. It would seem that the demand for coke is even lighter than anything in iron and the amount of iron ore coming down the Lakes is not large, apparently nothing being done that anticipates a large fall trade in iron or even a guess that there will be a revival of demand next winter. The quotations remain on the basis of $4.15 for best 72-hr. Connellsville foundry, with $3.15 for stock coke.

Chicago—Country dealers show an inclination to stock up on domestic sizes, and some improvement is noted in furnace and foundry demand. Market prices are about the same as last week, being as follows: Byproduct, $4.45@4.65; Connellsville, $4.60@4.75; Wise County, $4.50@4.65; gas coke, $3.75@4; furnace, $4.50@4.65.

MIDDLE WESTERN

GENERAL REVIEW

Buying slow and prices do not advance. Screenings continue firm. Pocahontas and smokeless coals strong. Anthracite demand below normal.

Screenings have continued on about the same level as a week ago, prices averaging about 85c. to 90c., although toward the close of the week they showed a slight softening. No perceptible increase in the consumption of fine coal by manufacturing plants has been evidenced. The insignificant demand for coarser sizes results in a reduction in the output of all grades, which in turn contributes to the maintenance of high prices on screenings.

The volume of coal taken by the retail yards is still below normal. The consumer buys only for his immediate needs, and no orders are being placed for storage purposes. The dealers are still finding more or less trouble in making collections some of their unpaid accounts being as far back as last fall, and this has doubtless made them hesitate about placing orders with shippers. As a result of last year's experience country dealers in many cases are showing no disposition to make contracts preferring to take their chances in the open market this fall and winter and shippers are not pressing them to change from this attitude. It is anticipated that storage business will not open to any considerable extent before June 15 and in many cases later.

CHICAGO

Movement light in all directions but an improvement anticipated soon. Prepared grades of West Virginia in fair demand and Hocking coals also improving.

Southern Illinois producers report a slight increased buying from Western sources for domestic sizes for early delivery. Screenings from Franklin and Williamson Counties are scarce and bring high prices. Carterville washed sizes are strong, but raw screenings are weak, having been offered in the Chicago market recently at as low as 75c. per ton. The situation with respect to coarse coals from these districts is expected to improve slowly but surely from now on.

No change has occurred in the Springfield district. The minimum amount of railroad coal is moving, while there is a strong demand for screenings, shippers not being able to fill all the orders received.

Indiana coals are flat except screenings, for which the demand has been strong until the latter part of the week, when some softness was noted. Some contracts for screenings have been closed at the same figures as last season.

West Virginia smokeless in the prepared sizes is strong, but weak on mine-run, which has been quoted as low as $1 per ton in the Chicago market. Retailers are showing more eagerness to close contracts. Splint coals are dull and prices inclined to be weak. Some consignment coal has been moved at whatever prices it would bring. Pennsylvania smokeless grades are becoming stronger, and the retail trade is commencing to place more orders for these coals.

Eastern Kentucky fuels are inactive with prices most variable. It is not thought that an increased demand for these grades will be felt before late in the summer.

The movement of Hocking coal is light but it is held at fairly firm prices. Shipments are commencing to move in larger quantities via the Lakes, which is having a beneficial effect. It is reported a few contracts have been closed.

The end of May saw improved buying of anthracite. Prices are well maintained, and little free coal has moved into this district. Curtailment of anthracite production is evidently having a good effect on the Western situation.

The market is quotable as follows:

	Williamson and Franklin Cos.	Springfield	Sullivan	Clinton	Greene Co.
Lump	$1.25@1.35	$1.25@1.35	....	....	....
4-in. lump	....	....	$1.35@1.40	$1.30@1.40	....
Steam lump	1.15	1.10@1.25	1.25@1.30	1.10@1.25	....
2½-in. lump	....	....	1.20@1.30	1.20@1.30	....
1½-in. lump	....	....	1.15@1.25	1.05@1.20	....
Mine-run	1.10@1.25	1.00@1.10	.90@1.10	1.00@1.10	....
Egg	1.15@1.35	1.15@1.25	1.10@1.25	1.00@1.15	....
No. 1 washed	1.20@1.35	....	1.50@1.60	....	....
No. 2 washed	1.25@1.35	....	1.60	....	....
6x3-in. egg	1.20@1.35	....	....	....	....
Nut	1.10@1.25	1.05@1.25	.95@1.05	1.00@1.05	....
No. 1 nut	1.25@1.35	....	....	....	....
No. 2 nut	1.20@1.35	....	....	....	....
Screenings	.90@1.00	.85@ .95	.75@ .80	.85@ .90	....

	Harrisburg Saline Co.	E. Kentucky	N. Riv. & Poca.	Somerset	Hocking
Lump	$1.25@1.35	$1.25@1.40	$1.70	$1.35@1.65	$1.50@1.60
1¼-in. lump	1.15@1.25	1.15@1.25	....	....	1.15@1.35
Mine-run	1.10	.95@1.10	1.00@1.25	1.00@1.15	....
Egg	....	1.00@1.10	1.70	1.35@1.65	1.25
Nut	....	....	1.40	1.35@1.45	1.15@1.25
Pea	....	....	1.35	....	....
Screenings	.90@1.00	....	....	....	....

Knox and Greene County, 5-in. lump, $1.15@1.25; 3-in. lump, $1.15; 5-in. egg, $1.15; 3-in. egg, $1.10@1.15; mine-run, $1@1.05; screenings, 75@85 cents.

INDIANAPOLIS

Business quiet but with a fair undertone.

The cool weather in May created a market for domestic grades that is unusual so late in the season, though it was not extensive. Most of the mines in operation are making good time though others are closed down entirely. Unless the unexpected happens industrially and commercially, the trade will remain at a steady level. The educational institutions will soon begin ordering their season's supplies, to be delivered in June, July or August, during the vacation period; July and August also bring a demand from the threshers. In August the retailers begin to give their first orders and manufacturing plants to accumulate their winter surpluses. The factory demand continues to show a slight improvement. There is good call for slack, at 85c. for Nos. 5 and 6 and 90c. for No. 4. Prices at the mines continue at the summer level.

ST. LOUIS

Retail trade good but the wholesale business is at a standstill. High river stage releases Pittsburgh coal and closes the Southern markets to St. Louis agencies.

The local market is practically at a stand-still. Some Carterville coal is beginning to move into the country, and screenings seem to be in demand. Standard grades are bringing 85 to 90c., and Carterville is strong at 95c. Carterville lump has been selling at $1.05 to $1.20 during the past week, and Franklin County is still held at $1.25. Standard 2-in. lump is quoted 77½c. at the mines, or rather that is the price made by the recently formed selling agency; the better grades of Standard coal are bringing $1 for 2-in. lump and $1.10 for 6-in. lump.

In a retail way conditions are about normal. What coal is moving in wagon-load lots is bringing a good price. Dur-

ing the past week the ice business dropped off considerably, and with just a small amount of coal being ordered, the retailers have found things rather slow.

There will be a dropping off in the tonnage of Illinois coal moving south to river points, which has been unusually heavy for the past two months or more. Low water in the Ohio River tied up Pittsburgh coal, but the recent rains released 13 tows of 244 barges laden with about 214,000 tons.

KANSAS CITY

The wholesale business has increased during the week and the shipments of coal are coming in faster every day. The retail trade has shown a slight change for the better, owing to the fact that the weather has been decidedly cool. Delays in shipments have occurred owing to the high water all through the river sections of Kansas and Missouri.

PRODUCTION AND TRANSPORTATION STATISTICS

NORFOLK & WESTERN

Destination of shipments over this road for April of this year, the four months of this year and last year were as follows, in short tons:

	April		Four Months	
Coal	1914	1915	1914	1915
Tidewater, foreign	188,513	365,874	617,185	753,317
Tidewater, coastwise	323,280	216,087	1,315,143	1,052,009
Domestic	1,605,493	1,618,590	5,929,365	5,807,936
Coke				
Tidewater, foreign	.....	1,122	15	2,959
Domestic	86,918	76,450	404,587	284,537
Total	2,204,204	2,278,123	8,266,295	7,900,758

VIRGINIAN RAILWAY

Shipments over this road for March of the current year amounted to 309,427 short tons as compared with 344,139 during the preceding month.

RATE DECISIONS

I. C. C. No. 6001—Basin Supply Co. vs. Texarkana & Ft. Smith Ry. Co.

1. The carrying of coal for use as fuel and to be consumed by a vessel engaged in coastwise or foreign trade does not constitute a coastwise or export movement of the commodity.

2. Defendant's demurrage regulations relative to the free time allowance on bunker coal at Port Arthur, Tex., not found to be unreasonable or unjustly discriminatory. Complaint dismissed.

Investigation and Suspension Docket No. 475—Bituminous coal rates to Baltimore, Md., and other points.

1. Proposed increases in rates for the transportation of bituminous coal from mines in Pennsylvania, Maryland, and West Virginia to Philadelphia, Penn., Wilmington, Del., and Baltimore, Md., for transshipment to points inside the capes of the Delaware and Chesapeake bays not justified. Tariffs naming the increased rates required to be canceled.

2. If rail carriers be permitted to establish rates in connection with water carriers upon a basis which will equalize shippers at various points along the waterway, they will absorb the benefit which should accrue to the public of the lower cost of water transportation.

I. C. C. No. 6617—Application of the Spokane, Portland & Seattle Ry. Co., under the provision of section 5 of the act to regulate commerce, as amended by section 11 of the Panama Canal Act, in connection with the operation of the Dalles, Portland & Astoria Navigation Co.

On petition of the Spokane, Portland & Seattle Ry. Co. under section 5 of the act, as amended by the Panama Canal act, for a temporary extension of time during which petitioner may retain ownership of the Dalles, Portland & Astoria Navigation Co.; **Held—**

1. That the Dalles, Portland & Astoria Navigation Co. does and may compete with petitioner's rail line.

2. That the continued ownership by petitioner of the Dalles, Portland & Astoria Navigation Co. would not be in the interest of the public and of advantage to the convenience and commerce of the people, and that it would exclude, prevent, or reduce competition on the water route here considered.

3. Petition denied, effective June 1, 1915.

I. C. C. No. 6976—Daly Coal Co. Et al vs. Chicago & Alton R.R. Co., Et al.

Rates on bituminous coal from mines in Illinois and Indiana to St. Paul and Minneapolis, Minn., not found unreasonable. Complaint dismissed.

FOREIGN MARKETS

GREAT BRITAIN

Difficulty in obtaining privilege to export. Considerable business going to American operators.

Attention naturally still centers on the Government prohibition of unlicensed coal exports and the method of issuing licences. There is no doubt that the restriction of exports from this country is greatly stimulating the demand for American coal, particularly for shipment to Italy. So far as the North-East Coast is concerned, the refusal of licences puts a check on any expansion of trade with Scandinavian countries, on which many of the collieries are greatly dependent. Difficulty in securing licences has also been experienced in South Wales markets. We understand that the Norwegian State Railways have now contracted for their supplies of steam coal over the summer months. The original inquiry was for 40,000 tons, but the quantity contracted for is now stated to be 80,000 tons. Tenders for the Swedish State Railways are said to have been prepared on the basis of about $6 a ton f.o.b. for best Northumberland steams, subject to licence.—"The Iron & Coal Trades Review."

May 21—Business is on rather quiet lines and prices are lower. It is anticipated, however, that an improvement will shortly set in. Quotations are approximately as follow:

Best Welsh steam	Nominal	Best Monmouthshires	$7.92@8.04
Best seconds	Nominal	Seconds	7.44@7.68
Seconds	$7.44@7.92	Best Cardiff smalls	5.04@5.16
Best dry coals	8.40@8.88	Cargo smalls	4.44@4.56

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

Freights—Chartering is quiet and rates have further weakened. They are approximately as follow:

Gibraltar	$4.80	Naples	$5.76	St. Vincent	$4.56
Marseilles	5.79	Alexandria	5.28	Rio de Janeiro	6.60
Algiers	5.79	Port Said	5.28	Monte Video	6.00
Genoa	5.76	Las Palmas	4.32	River Plate	6.24

Note—These quotations are based on an exchange rate of 24c. to one shilling.

Italy—An American consular officer in Italy reports that a firm in his district desires to communicate with American exporters of bunker coal.

Canada—A report received from an American consular officer in Canada states that a business man in his district is undertaking to establish a rather extensive coal business. Prices on a good quality of anthracite coal, quoted f.o.b. shipping point, are desired. The man states that the initial orders will probably amount to 1000 to 1500 tons. (No. 16,959.)

Great Britain—The British coal freighters "Glenmoroen" and "Therese Heymann" have both been posted at Lloyd's as among the victims of the German raiders. The "Glenmoroen" of Leith sailed from Tyne for Leghorn on Dec. 26, and the "Therese Heymann" of London sailed from the same port for Savona, Dec. 25.

Spain—An American consular officer in Spain transmits the names and addresses of a number of leading coal importers and merchants in his district. Correspondence should be conducted in Spanish.

Italy—A firm in Italy informs an American consular officer that it desires to communicate with American manufacturers and exporters of coal. Correspondence may be in English. References are given.

Buenos Aires—The mayor of Buenos Aires has addressed a note to the Minister of the Interior asking to be informed whether the Comodoro Rivadavia Exploitation Committee could supply the municipality with 3500 tons of petroleum fuel annually. The various power installations of the municipality consume 5000 tons of Cardiff coal yearly, which at $12.75 per ton comes to $64,000 per annum. It is anticipated that the substitution of the Comodoro Rivadavia oil would result in an annual economy of $30,000. The modifications in the boiler installations that this change of fuel would necessitate are being studied.

Spain—Madrid newspapers feature offers made by American exporters of coal. The list of firms interested in coal, which was furnished by the consulate to the Ministry of Treasury, is published with the following statement from the ministry: The United Statess offers to sell or send to Spain as many shiploads of coal as may be necessary. The price of this coal c.i.f. Spanish port, according to information at hand, will be between 64 and 65 pesetas (about $13.12 and $13.32) per long ton.

Coal Contracts Pending

The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.

For the official advertisements of bids wanted see the Contracts-to-Be-Let Section on Page 38.

✚Indicates contracts regarding which official information has been received.

Recast

In the following table we give a list of all old contracts coming up for consideration during the ensuing week. The table gives our contract number, the name of the purchaser, city, tonnage and page (all in Vol. 7) on which the detail notice appeared:

No.	Purchaser	City	State	Tonnage	Page
508	Supt. of Supplies	Philadelphia	Penn.		955
679	Board of Education	Dayton	Ohio	6000	955
691	Watervliet Arsenal	Watervliet	N. Y.		877
728	Board of County Comrs.	Bryan	Ohio	125a	916
733	Bd. of Control and Supply	Providence	R. I.		917
735	Board of Education	Davenport	Iowa	2900b	917
755	Board of Education	Lakewood	Ohio	2000b	917
776	Board of Education	Ridgefield Park	N. J.	300a	956
778	Mich. Home and Training School	Lapeer	Mich.	7000b	956
778	Mich. Home and Training School	Lapeer	Mich.	100a	956
779	Electric Light Plant	Onawa	Iowa		956

a Indicates anthracite coal. b Indicates bituminous.

Supplemental Notes

Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.

✚No. 486—Boston, Mass.—Bids have been received on this contract (Vol. 7, pp. 665, 915), which provides for the Massachusetts hospitals, as follows:

Bidders	Boston State Hospital, 6500 tons	Boston Psychopathic Hospital, 1500 tons	Danvers State Hospital, 6500 tons	Foxboro State Hospital, 2000 tons	Gardner State Colony, 800 tons
E. Russell Norton	....	....	....	$4.20	$4.32
H. N. Hartwell	....	....	4.17	4.13 to 4.28	4.28
Staples Coal Co	....	....	....	....	....
Geo. E. Warren Co	....	....	4.25	4.30	4.39
Maryland Coal and Coke Co	....	....	....	4.25 / 4.45	4.35
Claflin & Summer	....	....	....	....	....
M. L. Cobb	....	....	....	4.35	4.30
S. P. Burton	....	....	....	4.34	....
Sprague, Breed & Brown	....	....	4.20	....	....
Spring Coal Co	$4.70	....	3.88	4.48	4.35
Quemahoning Coal Co	4.86	....	....	4.36	....
Skeele Coal Co	....	....	....	4.35	4.45
J. F. Holbrook	....	....	....	....	....
N. E. Coal and Coke Co	....	....	....	....	....
Bader Coal Co	....	....	....	....	....
City Fuel Co	4.75	....	....	....	....
Daniel Doherty Co	4.66	....	....	....	....
Brookline Coal Co	....	4.64	....	....	....
F. C. Warren Bradford Coal Co	....	4.80	....	....	....

Bidders	Grafton State Hospital, 3000 tons	Medfield State Hospital, 6000 tons	Monson State Hospital, 3400 tons	Northampton State Hospital, 1500 tons	Taunton State Hospital, 2000 tons	Waverley School for Feeble-Minded, 3000 tons	Westboro State Hospital, 5000 tons	Worcester State Hospital, 5500 tons	Wrentham State School, 2000 tons
E. Russell Norton	....	$4.19	$4.01	$4.12	$3.56	$3.55	$4.38	....	$4.19
H. N. Hartwell	4.09	4.13	4.10	4.09	3.93	3.55	4.23 / 4.38	....	4.08 / 4.13
Staples Coal Co	....	....	....	....	4.47	....	....	....	....
Geo. E. Warren Co	4.15	4.25	3.99	4.17	4.15	....	4.40	....	4.29 / 4.48
Maryland Coal and Coke Co	....	4.25	....	4.15	3.62	3.72	3.62+ / 3.70+	....	4.25
Claflin & Summer	B 3.33 / 4.08	....	....	....	....	....	....	4.52	....
M. L. Cobb	....	4.35	....	4.15	....	....	....	....	4.35
S. P. Burton	4.15 /	4.35½	....	....	....	....	....	....	4.3
Sprague, Breed & Brown	....	....	....	....	....	....	....	....	....
Spring Coal Co	B 3.04 / 4.20	4.48	4.04	4.20	3.73	3.67	3.73+	....	4.30
Quemahoning Coal Co	....	4.36	....	4.26	4.26	....	3.73+	....	4.36
Skeele Coal Co	....	....	....	4.25	....	....	....	....	4.35
J. F. Holbrook	....	....	3.99 / 4.25	....	....	....	....	....	....
N. E. Coal and Coke Co	....	....	....	....	....	3.60	....	....	....
Bader Coal Co	....	....	....	....	....	3.72	....	....	....
City Fuel Co	....	....	....	....	....	....	....	....	....
Daniel Doherty Co	....	....	....	....	....	....	....	....	....
Brookline Coal Co	....	....	....	....	....	....	....	....	....
F. C. Warren Bradford Coal Co	....	....	....	....	....	....	....	....	....

\+ Plus 85 cts. ft. B, Birdseye.
Address E. R. Libby, Room 6, State House, Boston, Mass.

✚No. 541—Toronto, Can.—Bids on this contract (Vol. 7, p. 708), which provides for furnishing coal to various public buildings throughout Canada, will be received until June 17. Specifications and proposal forms can be had on application. Address Secretary, Department of Public Works, Toronto, Can.

✚No. 550—Norfolk, Va.—Only one bid has been received on this contract (Vol. 7, p. 709), which provides for furnishing the local War Department with 3000 tons of bituminous coal. The company bidding was Nottingham & Wrenn Co., and the price quoted was $2.50 per ton. Address Lieut.-Col. of Engrs. Pervey, U. S. Eng. Office, Norfolk, Va.

No. 764—Franklin, Ohio—This contract (Vol. 7, p. 956) should read 1000 tons per month instead of 1000 per year, as previously noted. Address Secy. Fred B. Zartman, Franklin Board & Paper Co., Franklin, Ohio.

✚No. 706—New York, N. Y.—The date of opening the readvertised bids on this contract, which was originally set for June 10, has been changed to June 11. This contract (Vol. 7, pp. 877, 918, 955) covers the consolidated fuel and forage bids, issued by the Central Purchasing Committee, on which the first original bids have been rejected. The original bids will not appear in these columns, but a complete list may be obtained on application to the editorial department. Address regarding the contract Secy. F. R. Leach, Central Purchasing Committee, Room 1226, Municipal Bldg., New York City.

✚No. 719—Revere, Mass.—The bids on this contract (Vol. 7, p. 916), which provides for furnishing the coal requirements of the city buildings during the ensuing year were as follows: George F. Proctor & Co., stove, egg and nut, $6.55; stove and nut coal for Charity Dept., $7.25. Metropolitan Coal Co., bituminous mine-run (14,400 B.t.u.), $4.40; stove and egg, $6.35; nut, $6.60; nut coal for Charity Dept., $7.50. Chelsea Iron & Coal Co., egg and stove, $6.57; Lehigh egg and stove, $6.72. Revere Ice & Fuel Co., bituminous lump (14,800 B.t.u.), $4.75; stove and egg, $6.75; nut, $7.50. Staples Coal Co., stove and egg, $6.49; nut, $6.74. Address Mayor Arthur B. Curtis, Revere, Mass.

✚No. 726—New York—Bids on this contract (Vol. 7, pp. 916, 955) were opened last Tuesday morning (June 1), and were as follows:

	Item 1	Item 2	Item 3
Wm. Farrell & Son	$6.16	....	....
Burns Bros.	6.18	$5.84	$5.98
Bacon Coal Co.	....	....	5.79
Meyer, Denker-Sinram Co.	....	5.90	5.97
Jos. Gordon, Inc.	....	6.08	....
Commercial Coal Co.	....	5.90	....

Item 1—2700 gross tons egg or stove coal for fireboats berthed on the North River and New York Harbor. Item 2—1450 gross tons egg or stove coal for fireboats on East River. Item 3—1150 gross tons egg or stove coal for fireboats berthed on the Harlem River. Address Fire Commissioner Robert Adamson, Municipal Building, New York City.

✚No. 734—Brookings, S. D.—This contract (Vol. 7, p. 917), which provides for furnishing the fuel requirements of the local Light, Heat and Water Department, will not be let before July. In the meantime competitive tests are being conducted with various coals in order to determine which will give the most economical results. Address Supt. A. W. Morton, Light, Heat & Water Dept., Brookings, S. D.

✚No. 777—Washington, D. C.—Bids on this contract (Vol. 7, p. 956), which provides for furnishing the Capitol Bldg. with coal, were as follows:

Company	Ash	Carb.	Vo. Mt.	Sul.	B.t.u.	Coal
White Oak Coal Co.	$2.90	6.00	.....	18.20	....	14,900[1] White Oak Special
Commercial C. M. Co.[2]	2.88	4.85	73.75	20.86	1.42	14,967 Star Miller Vein
Enterprise F. Co..	2.87	7.50	71.72	22.23	1.37	14,500 "B" or Miller Vein
Enterprise F. Co..	2.94	7.50	75.43	17.31	1.42	14,550 Gantier Miller Vein
Enterprise F. Co..	2.98	6.20	71.30	22.50	0.75	14,580[1] Peerless Miller Vein
Vinton Coll. Co...	2.84	6.09	73.55	20.36	2.12	14,801 Miller "B" Smokeless
J. M. Dove.....	2.82	5.30	74.76	18.85	1.07	14,922 Logan mine-run
J. M. Dove.....	2.87	4.80	72.56	22.64	1.00	14,700 New River
Thorne Neal & Co.	2.90	7.44	73.15	19.02	1.68	14,301 Sonman "E" vein
B. Nicoll & Co....	3.00	7.00	74.00	18.00	1.10	14,600 Glendale (Penn.)
B. Nicoll & Co....	2.83	8.00	72.00	20.00	2.00	14,350 "B" or Miller vein
Bradford & Co....	2.80	7.27	68.81	22.92	1.10	14,472 Berwindale (Penn.)
Bradford & Co....	2.99	6.12	69.70	22.10	0.85	14,685 Vivian (Penn.)
Hendley & Co....	2.95	5.06	69.00	25.85	....	..... Clearfield, Penn., 4 & 5
Stewart & Co.....	2.95	6.60	68.50	24.90	1.05	14,550 Rich Hill (Penn.)
White & Co.....	3.10	4.70	77.30	18.00	0.80	14,960 Eureka, B.W.C.M.C Co., Penn.

[1] Average. [2] Contractor for year, ending June 30, 1915.

The Logan Coal Co. bid $2.83 on "B" or Miller vein, South Fork coal. The Maryland C. & C. Co. bid $2.89 on Imperial No. 1 (Guyon), $2.94 on Imperial No. 2, both Clearfield County, Pennsylvania, and $3 on New River. Lynah & Read bid $2.85 on Cardiff mine-run. Address Elliott Woods, U. S. Capitol Bldg., Washington, D. C.

New Business

✚No. 782—White Plains, N. Y.—Sealed proposals will be received until 5 p.m., June 14, for furnishing about 1000 gross tons of bituminous coal for the local water-works. A certified check for $100 must accompany each bid. Address Board of Water Commissioners, 64 Martine Ave., White Plains, N. Y.

✚No. 783—Indianapolis, Ind.—The Board of Trustees of the Central Indiana Hospital for Insane will receive bids until June 9, for furnishing 24,000 tons of steam coal f.o.b. hospital switch. Bidders must state the grade of coal they propose to furnish, block, lump, steam lump, nut, mine-run, slack or other grades, must give name and location of the mine or mines from which the coal is mined and submit an analysis with their bid. Deliveries are to begin Oct. 1, 1915, and to be completed Sept. 30, 1916 and are to be in such quantities and at such time as required. Coal is to be accepted at hospital weights. Sufficient bond must be given and a certified check for $500 accompanying each bid. Address Secy. L. Ert. Slack, Central Indiana Hospital for Insane, Indianapolis, Ind.

No. 784—Louisville, Ky.—William Schuff & Co., tanners, at this place, will be in the market about July 1 for two car loads of nut and slack coal per month during the ensuing year. Address Supt. F. W. Wagner, William Schuff & Co., 803 South 12th St., Louisville, Ky.

✚No. 785—Tupelo, Miss.—The Water and Light Plant at this place will be in the market about June 30 for its annual requirements of coal, involving about 4500 tons. Alabama bituminous coal is ordinarily used and the cost is approximately $2.05 per ton. The call for bids is advertised. Address W. H. St. John, Box 565, Tupelo, Miss.

✚No. 786—Elgin, Ill.—The Board of Education will contract some time during the latter part of June for approximately 1575 tons of Christopher, Franklin County, Ill., coal. The business is let on competitive bids, which are advertised in the local papers for 10 days. The present contract is being filled at about $3.12 per ton in the bins. Address Supply Committee, Board of Education, Elgin, Ill.

✚No. 787—Springfield, Ohio—The Hospital Board at this place will receive bids until noon, June 15, for furnishing the coal required during the period ending May 1, 1916. Bids should cover cost of delivery in bins and must be accompanied by satisfactory bonds for $200. Address Clk. William H. Mahoney, Bd. of Hospitals, Room 2, City Bldg., Springfield, Ohio.

No. 788—Chicago, Ill.—The American Varnish Co. will contract about July 1 for a year's supply of Illinois or Indiana mine-run or nut coal. This company consumes about 70 tons per month. Address Pur. Agt. Seegers, American Varnish Co., Chicago, Ill.

No. 789—Louisville, Ky.—The Louisville Hotel will close contract about July 1 for 3500 tons of nut and slack coal to be delivered throughout the year at the rate of approximately ten tons per day. The contract is let by competition. Address Mgr. Herman Steinhilber, Louisville Hotel, Louisville, Ky.

No. 790—Chicago, Ill.—The Bryant Mfg. Co., will be in the market about July 1 for one year's contract, for 200 tons of 72 hr. Connellsville coke. Address Purchasing Agent, Bryant Mfg. Co., Chicago, Ill.

No. 791—Louisville, Ky.—Various distilleries and breweries in Kentucky are in the market for 600,000 tons of slack, nut and lump coal. The contract will be closed July 1. Specifications as to kind of coal and place and conditions of delivery can be secured now. Address R. E. Wathen, 104 West Main St. Louisville, Ky.

No. 792—Louisville, Ky.—The Joseph Schwab Jr., Distillery, will contract July 1 for a year's supply of nut and slack coal. Seven tons a day is consumed, which is delivered by rail. The present contract is held by the Continental Coal Corp. Address Joseph Schwab Jr., Distillery, 815 Logan St., Louisville, Ky.

✚No. 793—Atlanta, Ga.—The Georgia Railway & Power Co., at this place, will be in the market about July 1 for 50,000 tons of Alabama coal which usually costs about $2.50 per ton delivered. Address Purchasing Agent, Georgia Railway & Power Co., Atlanta, Ga.

✚No. 794—Jackson, Miss.—Sealed proposals will be received until noon, June 7, for furnishing the state institutions at this place and at Meridian, with coal as follows: East Mississippi Insane Asylum, 1500 tons; State Insane Hospital, 2500 tons for delivery on switch at asylum in suburbs of Jackson; State Capitol Building, D. & D. Institute, Blind Institute, State Charity Hospital, 2000 tons. No. 2 lump coal only is required, and the successful bidder must furnish a bond for $2000. Address Secy. Joseph W. Power, Bd. of Public Contracts, Jackson, Miss.

✚No. 795—Cullman, Ala.—The Light and Water Plant at this place will be in the market about July 1 for 2400 tons of washed nut coal, which is usually bought at $2.60 per ton. The business is let on a competitive basis. Address Supt. B. Kiel, City of Cullman Light and Water Plant, Cullman, Ala.

✚No. 796—Havelock, N. D.—The Board of Education at this place received bids until noon, June 1, for furnishing four or five double car loads of coal for each of the four schools in District No. 3. Address Clk. Mrs. Geo. B. Bagley, Bd. of Edu., Havelock, N. D.

✚No. 797—Higginsville, Mo.—Municipal Electric Light & Water Plant at this place will be in the market the first Monday in July for 1440 tons of bituminous mine-run coal. The current contract is being filled at $2.56¼ at boilers. The business is let on a competitive basis. Address Supt. D. Riepe, Municipal Electric Light & Water Plant, Higginsville, Mo.

No. 798—Iowa Falls, Iowa—Sealed proposals were received until 7:30 p.m., June 4, for furnishing the Local Board of Education with approximately 200 tons of Brazil block lump coal, proposals to cover the cost of delivery at the school houses. Address Secy. T. E. Bell, Bd. of Edu., Iowa Falls, Iowa.

✚No. 799—London, Ohio—The Municipal Light plant at this place will be in the market about July 1, for 1800 to 2000 tons of coal. Smithers Creek, W. Va., coal is being used at present, the cost being $2.35 per ton delivered. The coal is bought on competitive bids. Address Supt. H. W. Dickinson, Municipal Light Plant, London, Ohio.

No. 800—Nevada, Mo.—Bids will be received by the Lincoln Institute at this place, until June 9, for furnishing its coal requirements during the fiscal year ending July 1, 1916. Bids should cover cost of delivery in bins at the school. Address Secy. Nelson C. Burch, Lincoln Institute, Nevada, Mo.

✚No. 801—Henderson, Ky.—The Municipal Electric Light Station at this place will be in the market July 1 for about 9000 tons of slack coal. The coal is bought on competitive bids, and the current contract is being filled on the basis of about $1 per ton. Address Supt. L. P. Hite, Municipal Electric Light Station, Henderson, Ky.

No. 802—Boston, Mass.—The Bay State Ry. Co. will contract about July 1 for about 150,000 tons of bituminous mine-run coal and 4000 tons of anthracite screenings. Deliveries are to be made at various points, principally by water. Address A. P. Emmons, Bay State Ry. Co., 84 State St., Boston, Mass.

✚No. 803—Jackson, Mich.—The Board of Education at this place will be in the market about July 1 for approximately 350 tons of anthracite, 280 tons of Pocahontas, 700 tons of West Virginia splint and 400 tons of steam nut. The anthracite is usually purchased at $7.75; Pocahontas, $5; West Virginia splint, $3. The call for bids is advertised. Address Committee on Fuel, Board of Education, 331 Ten Eyck St., Jackson, Mich.

✚No. 804—Newcomerstown, Ohio—Sealed bids will be received until noon, June 1, for furnishing the Board of Education at this place with 4000 bu. of forked screened coal, 5000 bu. of mine-run, and 1000 bu. of slack coal. Two-thirds of the requirements are to be delivered by Sept. 15. Address Clk. H. H. Eagon, Bd. of Edu., Newcomerstown, Ohio.

✚No. 805—Caldwell, Kan.—The Light & Water Plant at this place will contract, about July 1, for approximately 3000 tons of mill coal, which is usually bought at $2.85 per ton delivered in the bin. The business is let on competitive bids. Address Supt. H. W. Baker, Caldwell Light & Water Plant, Caldwell, Kan.

✚**No. 806—Galveston, Tex.**—Sealed proposals will be received until 10 a.m. June 10 for furnishing the Depot Quartermaster of the U. S. Army at this place with approximately 1000 short tons of coal per month during the ensuing year. The coal is for use at the Port of Embarkation. Bids should be submitted covering cost of delivery and trimming in transport bunkers at Galveston and Texas City, Tex.; delivering in transport bunkers but not trimmed; delivered and trimmed in transport bunkers at contractor's dock; the same not trimmed and delivered in contractor's barges alongside of transport; delivered on government barges at contractor's dock; delivered from chutes into transport but not trimmed; delivered in contractor's barges at contractor's dock. All bidders must submit certified check for 15% of the amount involved in the proposal or furnish other satisfactory evidence for the faithful completion of the work. Address Lt. Col. C. R. Krauthoff, Quartermaster Corps, U. S. Army, Galveston, Tex.

No. 807—East Lansing, Mich.—The Michigan Agricultural College will receive bids until noon, June 16, for supplying the Institute with approximately 8000 tons of bituminous nut, pea and slack coal, and 100 tons of bituminous ¾-in. lump. Bids should be made f.o.b. the College siding, via Pere Marquette R.R. Deliveries will be required at the rate of about six cars per week. Bidders must state whether the coal they propose furnishing is mined in Michigan and also give the minimum B.t.u. value guaranteed. Address Secy. A. M. Brown, Michigan Agricultural College, East Lansing, Mich.

✚**No. 808—Philadelphia, Penn.**—Sealed proposals will be received until June 8, for supplying the Bureau of Charities with anthracite stove and pea coal during July, August and September, and the Bureau of Correction with gas coal. All bids must be accompanied by the customary certificate required by the city, guaranteeing the faithful performance of the contract and bids must also be submitted on printed forms which may be had on application. Address Dir. Herman Loeb, Room 312, City Hall, Philadelphia, Penn.

✚**No. 809—Colfax, Wash.**—The Whitman County Government will receive bids until 11 a.m. June 7 for 100 tons of lump coal to be delivered at the Court House in Colfax and 20 tons for delivery at the County Farm nearby. Address County Auditor A. R. Metz, Colfax, Wash.

✚**No. 810—Oelwein, Iowa**—The City Government will receive bids until 8 p.m. June 7 for furnishing approximately 900 tons of coal. Quotations should be f.o.b. Oelwein. Address City Clk. E. H. Burlingham, Oelwein, Iowa.

✚**No. 811—Chicago, Ill.**—The City Government will contract about July 1 for approximately 123,000 tons of lump coal, which is usually bought at about $2.81 per ton. Address Business Manager, Tribune Bldg., Chicago, Ill.

✚**No. 812—East Providence, R. I.**—The Board of Education at this place will receive proposals until June 4, for furnishing about 900 tons of stove, egg and pea coal, delivery to be made during the fiscal year ending June 1, 1916. Address Clk. G. H. Blackwell, Grove Ave., East Providence, R. I.

No. 813—Boston, Mass.—The Stone & Webster Co. at this place will be in the market in July or August for approximately 15,000 tons of New River or Pocahontas mine-run coal for shipment at one of the lower Lake ports. Address R. E. Hamilton, Stone & Webster Co., 147 Milk St., Boston, Mass.

✚**No. 814—Lawrenceburg, Ind.**—Bids will be received by the Board of Education until 7:30 p.m., June 7, for 10,000 bu. of coal for the lighting plant. Address City Clk. Frank Globe, Lighting Plant, Lawrenceburg, Ind.

✚**No. 815—Toronto, Canada**—The Separate School Board at this place received tenders until May 31 for furnishing 200 tons of Pocahontas lump or mine-run coal; 300 tons of anthracite stove and egg coal each, and 200 tons of anthracite grate. Address the Toronto Separate School Board, Toronto, Canada.

Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

✚**No. 489—Staples, Minn.**—This contract (Vol. 7, pp. 665, 748), which provides for furnishing the Municipal Electric Light Plant at this place with coal, has been awarded to the **Dover Lumber Co.**, who was the only bidder. The business was closed at $2.40 per ton f.o.b. Duluth. Address Supt. John Effinger, Municipal Electric Light Plant, Staples, Minn.

✚**No. 558—Hamilton, Ohio**—This contract (Vol. 7, pp. 709, 794, 834), which provides for furnishing the fuel requirements of the local Board of Education, has been awarded to the **Pyrd-Brunner Coal Co.** for furnishing the 1600 tons of smokeless nut and slack. This company was the lowest bidder at $2.38. The business is being handled on a heat unit basis. Address Clk. Charles F. Holdefer, Bd. of Edu., Hamilton City School District, Hamilton, Ohio.

✚**No. 574—Cincinnati, Ohio**—The awards of this contract (Vol. 7, p. 749), which provides for furnishing the local Board of Education with fuel requirements, were as follows: **Marion M. Allen Supply Co.,** smokeless mine-run, District No. 1, $2.81; District No. 2, $2.90. **The Reliance Coal & Coke Co.,** bituminous nut and slack, District No. 1, 2.17; same, bituminous lump, $2.64. **B. H. Wess Grain & Coal Co.,** smokeless mine-run, District No. 3, $2.92; same, bituminous lump, $2.50. **Hyde Park Supply Co.,** District No. 4, smokeless mine-run, $2.94, same, bituminous lump, $3. Address Business Mgr. C. W. Handman, Bd. of Edu., Cincinnati, Ohio.

✚**No. 593—Boston, Mass.**—This contract (Vol. 7, p. 750) was awarded to **Batchelder Bros.,** at $4.23 for bituminous, $5.68 furnace, $6.13 egg and stove and $2.50 screenings, or a gross of $154,589.85. The Staples Coal Co. bid a total of $160,174.90; City Fuel Co., $160,841.75. Address Supt. D. Frank Doherty, 808 City Hall Annex, Boston, Mass.

✚**No. 664—Washington, D. C.**—Partial awards have been made on this contract (Vol. 7, pp. 836, 953, 954, 955), which provides for the fuel requirements of the U. S. Navy, as follows: **J. H. Weaver & Co.,** Class 2a, $3.20, 2b, $3.60. **Quemahoning Coal Co.,** Class 3a, $2.65, 3b, $2.75, 3c, $3.05, 5a, $2.58, 5d, $2.87, 5e, $3.38. 6a, $2.57, 6b, $2.70, 6c, $3.17, 6d, $3.07. **Crozer-Pocahontas Co.,** Class 8, $2.60. Classes 1, 4, 7, 9 and 10 have not yet been awarded. Address Paymaster General of the Navy Samuel McGowan, Washington, D. C.

✚**No. 696—Salem, Mass.**—This contract (Vol. 7, pp. 877, 955) has been awarded as follows: **John Girdler,** Georges Creek Cumberland coal for delivery at Salem, 450 tons at $4.55 and 300 tons at $4.65. **G. L. Gage,** 250 tons of New River coal for delivery at Lawrence, $4.95. **Cross Coal Co.,** 200 tons of New River coal for delivery at Lawrence, $4.95. **Atkinson Coal Co.,** 200 tons of New River coal for delivery at Ipswich, $4.70, and 150 tons for delivery at Newburyport, $4.47. **Theberge Bros.,** 450 tons of New River coal for delivery at Lawrence, $5.14. **Charlotte Fairfield,** 25 tons of anthracite for delivery at Salem, $6.85. **M. O'Mahoney,** 25 tons of anthracite for delivery at Lawrence, $8.45, and 30 tons for delivery at Lawrence, $7.45. Address Clk. H. E. Thurston, Essex County, Salem, Mass.

Contract Notes

Baltimore Exports—Baltimore has made a new record for coal exporting. During May a total of more than 230,000 tons was sent out by foreign ports.

Birmingham, Ala.—Contracts aggregating over 750,000 tons of coal are expected to be closed in this district shortly, most of this tonnage going on large contracts to railroads. Most of the Southern roads contract during the summer months.

Indianapolis, Ind.—Coal contracts for the fiscal year beginning June 1 have been awarded by the board of park commissioners. The Indianapolis Mortar & Fuel Co. will supply shoveled lump Pocahontas, 65% lump, at $3.95 a ton. The Frederick Coal Co. will supply mine-run Pocahontas at $3.40 a ton.

Birmingham, Ala.—The Seaboard Airline R.R. has placed an order for 140,000 tons of steam coal with the Alabama Co. This is the first of the big railroad contracts to be closed this season. This coal is for the entire Southern Division of the Seaboard and is for delivery in equal monthly installments over the next twelve months.

✚**Washington, D. C.**—Bids received in response to the request for telegraphic proposals for the delivery of 5000 tons of coal at the Naval Station, Key West, Fla. were as follows: Pocahontas Fuel Co., $4.54; Penn Fuel Co. $4.88; Smokeless Fuel Co., $4.54; J. H. Weaver & Co., $4.65; Willard Bros., $4.60; West Virginia Coal Co., $5.23; Castner, Curran & Bullitt, Inc., $4.45; Chesapeake & Ohio Coal & Coke Co., $4.78; William C. Atwater & Co., $4.80. It has been decided to reject all bids and use coal from their regular supply. Address Paymaster Gen. of the Navy Samuel McGowan, Navy Dept., Washington, D. C.

Buffalo, N. Y.—The award of contract for furnishing coal to the institutions of Erie County, N. Y. (Vol. 7, p. 957), is further postponed by the Board of Supervisors at Buffalo to afford time for looking into the legality of one of the low bids.

Northfield, Minn.—The Manhart Coal Co. was awarded the contract for furnishing 400 tons Pocahontas smokeless mine-run coal by the local School Board.

Lockport, N. Y.—The bids on this contract, which provides for furnishing 438 tons of anthracite egg, stove and chestnut coal, were as follows: Entire supply—Lockport Ice & Cold Storage Co., $2369; R. M. Hovey (egg and stove $6, nut $6.25), $2539.25; Graham Coal Co., $2480.40; M. J. Crowe (egg and stove at $5.85), $2503.95; George T. Lennon, $2562.95. Portions of contract—Mahar & Son, egg and stove, $5.51; Lockport Ice & Cold Storage Co., nut $5.78, pea $4.29, egg and stove $5.50; Hinch & Son, stove and egg, $5.55.